TKO

VERTICOOL™

VERTICAL LEVELER DOCK DOOR

User's Manual - Installation, Operations, Maintenance and Parts Listing

This manual applies to VertiCool Vertical Leveler Dock Doors manufactured beginning August 2012

⚠ WARNING

DO NOT install, operate or service this product unless you have read and understand the safety practices, warnings, installation and operation instructions contained in this manual. Failure to do so could result in death or serious injury.

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LIMITED WARRANTY

THIS LIMITED WARRANTY IS TKO DOCK DOORS SOLE AND EXCLUSIVE WARRANTY WITH RESPECT TO THE DOCK DOOR AND IS IN LIEU OF ANY OTHER GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED.

TKO DOCK DOORS warrants that this DOCK DOOR will be free from flaws in material and workmanship under normal use for a period of ONE (1) year from the earlier of 1) 60 days after the date of initial shipment by TKO DOCK DOORS, or 2) the date of installation of the DOCK DOOR by the original purchaser, provided that the owner maintains and operates the DOCK DOOR in accordance with this User's Manual.

EXTENDED LIMITED WARRANTY

In the event that this DOCK DOOR proves deficient in material or workmanship within the applicable limited warranty period, TKO DOCK DOORS will, at its option:

1. Replace the DOCK DOOR, or the deficient portion of either, without charge to the owner; or
2. Alter or repair the DOCK DOOR on site or elsewhere, without charge to the owner.

This limited warranty does not cover any failure caused by improper installation, abuse, negligence, or failure to maintain and adjust the DOCK DOOR properly. Parts requiring replacement due to damage resulting from abuse or improper operation are not covered by this warranty. TKO DOCK DOORS DISCLAIMS ANY RESPONSIBILITY OR LIABILITY FOR ANY LOSS OR DAMAGE OF ANY KIND (INCLUDING WITHOUT LIMITATION, DIRECT, CONSEQUENTIAL OR PUNITIVE DAMAGES, OR LOST PROFITS OR LOST PRODUCTION) arising out of or related to the use, installation or maintenance of the DOCK DOOR (including premature product wear, product failure, property damage or bodily injury resulting from use of unauthorized replacement parts or modification of the DOCK DOOR). TKO DOCK DOORS's sole obligation with regard to a DOCK DOOR that is claimed to be deficient in material or workmanship shall be as set forth in this Limited Warranty. This Limited Warranty will be null and void if the original purchaser does not notify TKO DOCK DOORS's warranty department within ninety (90) days after the product deficiency is discovered.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF, INCLUDING, BUT NOT LIMITED TO,A WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, ALL OF WHICH TKO DOCK DOORS HEREBY DISCLAIMS.

For questions regarding this warranty, services, or parts contact: TKO Customer Service at 1-800-575-3366.

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OWNER'S RESPONSIBILITIES

THE OWNER'S RESPONSIBILITIES INCLUDE THE FOLLOWING:

- The owners should recognize the inherent danger of the interface between the dock and transport vehicle. The owner should, therefore, train and instruct operators in the safe use of the TKO Dock Door as well as all dock equipment devices.
- Nameplates, cautions, instructions and posted warnings shall not be obscured from the view of operating or maintenance personnel for whom such warnings are intended.
- Manufacturer's recommended periodic maintenance and inspection (procedures in effect at date of shipment) shall be followed, and written records of the performance of these procedures should be kept.
- Loading dock doors that are structurally damaged or have experienced failure shall be removed from service, inspected by the manufacturer's authorized representative and repaired as needed before being placed back in service.
- The owner shall see that all nameplates, caution and instruction markings or labels are in place and legible and that the appropriate operating and maintenance manuals are provided to users.
- Modifications or alterations of loading dock doors shall be made ONLY with the written permission of the original manufacturer.
- When industrial trucks are driven on and off transport vehicles during the loading and unloading operation, the brakes on the transport vehicle shall be applied and wheel chocks or positive restraints that provide the equivalent protection of wheel chocks engaged.

⚠ WARNING

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TOOLS & MATERIALS

THE FOLLOWING TOOLS & MATERIALS ARE NECESSARY FOR PROPER INSTALLATION OF ANY TKO DOOR(S) AND ARE NOT PROVIDED BY TKO:

- Two Spring Winding Bars, approximately 24" (minimum) long for winding springs.
  - 1/2" diameter bars for 2-5/8" diameter springs.
  - 5/8" diameter bars for 3-3/4" and 6" diameter springs.

- Tools to mount track to wall using any of the recommend track anchoring methods:
  - Hammer Drill or Impact Wrench.

- Tools to mount track to wall using any of the alternate track anchoring methods:
  - Hammer Drill or Impact Wrench.
  - Welder with welding rods. Include grinder if door to be removed is welded to jambs.

- Aerial equipment: Ladders, scaffolding, scissors lift or boom lift.

- Hand tools: socket wrench set: 7/16", 1/2", 9/16", 4' long level, bar clamps or C-clamps, locking pliers/ vice grips, hammer, screwdrivers, and tape measure (contractor grade).

- Lubricants: Light Weight Oil for lubing Torsion/Counterbalance Springs.

- Steel angle (minimum 12 gauge) for Backhangs and Sway Braces. Size will vary with different applications.

- Anchors/Fasteners used to mount tracks, center and end bearing plates, etc.

- Spring Mounting Pad(s) MUST BE structurally sound to support weight of Spring(s) and the torque put on them.

TKO Dock Doors DOES NOT supply Spring Mounting Pads or Wall Mounting Hardware.

RECOMMENDED ANCHORS FOR HOLLOW BLOCK WALL

TKO recommends the following :

- 3/8"-16 Concrete Single or Double Expansion Shield Anchors and 3/8" Flat Washers (one per each anchor used in install).
- 3/8" Short Lag Shields and 3/8" Flat Washers (one per each anchor used in install).
- NOTE: Anchors must be those suitable per the manufacturer for use in hollow block wall, and installed per the manufacturer's instructions.

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SAFETY

SAFETY SIGNAL WORDS

You may find safety signal words such as DANGER, WARNING, or CAUTION throughout this owner's manual. Their use is explained below.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

⚠DANGER

Indicates an imminently hazardous situation which if not avoided, will result in death or serious injury.

⚠WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Notice is used to address practices not related to personal injury.

SAFETY PRACTICES

⚠WARNING

Read and follow these Safety Practices before installing, operating or servicing the door. Failure to follow the Safety Practices could result in death or serious injury.

If you do not understand the instructions, ask your supervisor to explain them to you, or call TKO at 1-800-575-3366, or ask qualified TKO door technician to assist.

Installation, Maintenance and Service

1. ONLY experienced and qualified door technicians should install or repair doors. Springs, cable brackets, cables, drums, plungers, supports and their hardware are under high tension and can cause injuries if not properly handled.
2. Use the proper type and capacity ladders, lifting equipment and safety straps or harnesses.
3. Safe and efficient installation requires a two-person crew.
4. Observe OSHA requirements for "LOCKOUT" or "TAGOUT" when performing work on doors.
5. Observe any/all overhead hazards such as electrical, air, process piping or HVAC ducting when working.
6. Move any dock leveler to the dock level storage position before using as a platform for ladders, lift trucks or other equipment used in the installation of the door.
7. Place barricades on the dock floor around the dock door and in the driveway in front of the door while installing, maintaining, or repairing the dock door.
8. If door is operated with any type of motor or automatic system, pull rope MUST BE removed and a safety reversing edge MUST BE installed.

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SAFETY (continued)

SAFETY PRACTICES (continued)

Operation

1. Personnel using the dock doors MUST BE properly trained.
2. Operate door ONLY when properly adjusted and free of obstructions. Should the door become difficult to operate or completely inoperative, immediately report to supervisor.
3. DO NOT stand or walk under moving door. Keep door in full view and free of obstructions while operating.
4. DO NOT allow children to operate the door or controls.
5. DO NOT throw door up violently. Using excessive force to open the door may cause the door cables to jump off the drums or door panels to disengage from tracks.
6. DO NOT close door onto obstructions. Obstructions in the opening may stop the doors movement and cause the door cables to jump or door panels to disengage from tracks.
7. To avoid injury, keep hands free of door parts while operating. Panels and door parts may create pinch points when in operation.
8. NEVER use damaged or malfunctioning dock door.

⚠ WARNING

All TKO Dock Doors [except Straight Verticals (SV)] require Safety Spreader Bar cross bracing and Safety Cable Assemblies to be installed in the area from the header to the top end of panel travel per the installation instructions on pages 16 through 23. If the Spreader Bars are not installed, the Tracks may spread, if impacted, and allow the door to fall. Failure to follow these instructions could result in death or serious injury.

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SITE PREPARATION

⚠ WARNING

Before installing the door, read and follow the Safety Practices on pages 4 and 5. Failure to follow the Safety Practices could result in death or serious injury.

DOOR OPENING

1. Measure DOOR OPENING WIDTH (DOW). The finished DOW MUST match the designed TRACK SPACING dimension as shown on the panel. The door panels may fall out of the tracks if the track spacing is not kept to these exact specifications. Measure width at floor, mid jamb, and header to identify and correct any width variations.
2. Measure DOOR OPENING HEIGHT (DOH). Verify finished DOH matches the door height listed on the door spec sheet. Stacked door panels are designed for additional panel height above header for proper sealing. If the finished DOH exceeds the specified door height more than (3"), contact TKO Doors for assistance.
3. Check jambs with a level to ensure the jambs are square to door opening. Any compromise will affect the door panel's ability to properly seal against the tracks. If jamb repair, replacement or adjustment is required, it is critical that the original door opening dimensions are maintained as listed in the original door specification sheet.
4. Check jambs with a level to ensure the jambs are plumb and straight. The tracks MUST BE installed level while maintaining the specified track spacing.
5. TKO recommends the use of pipe bollards for protection of the door tracks.

TRACK MOUNTING SURFACE

1. Measure available TRACK MOUNTING HEIGHT (TMH). Verify that the required TMH will fit in the available space. See job specific documents shipped with your order. If the required TMH exceeded what is available, contact TKO Doors for assistance.
2. Check door specification sheet for track mounting style and track print for TRACK MOUNTING WIDTH (TMW). Verify that the width of the mounting surface on jamb is equal or greater than the mounting width of the track.
3. Check TRACK MOUNTING DEPTH (TMD) for any obstructions such as a bollard or curb that would interfere with mounting the track to the jamb. Verify track depth on track print for track dimension. If track depth exceeds available space, contact TKO Doors for assistance.
4. Make sure all track-mounting surfaces, header beam and center bearing bracket pads are flush in relation to one another. The tracks, header seal, and center bearing bracket are designed to be installed on the same plane. Adjusting of end bearing plates may be necessary to keep upper tracks on the same plane as lower tracks. All mounting surfaces MUST BE smooth and free of any weld beads or bolt heads etc.
5. Check available DEPTH INTO BUILDING (WTC) and verify that the upper track assembly will fit within the given space. Refer to the track print for required track depth.
6. Check for potential obstructions that may impede the door's normal upward and downward travel such as an electrical box, sprinkler head, pipe etc. If adjustment or modification is necessary please contact TKO DOORS for assistance.
7. Check that the floor mounting area is level from right to left side within 1/4". Be prepared to level or shim under one side of track if necessary.

Contact TKO Doors for assistance at 1-800-575-3366.

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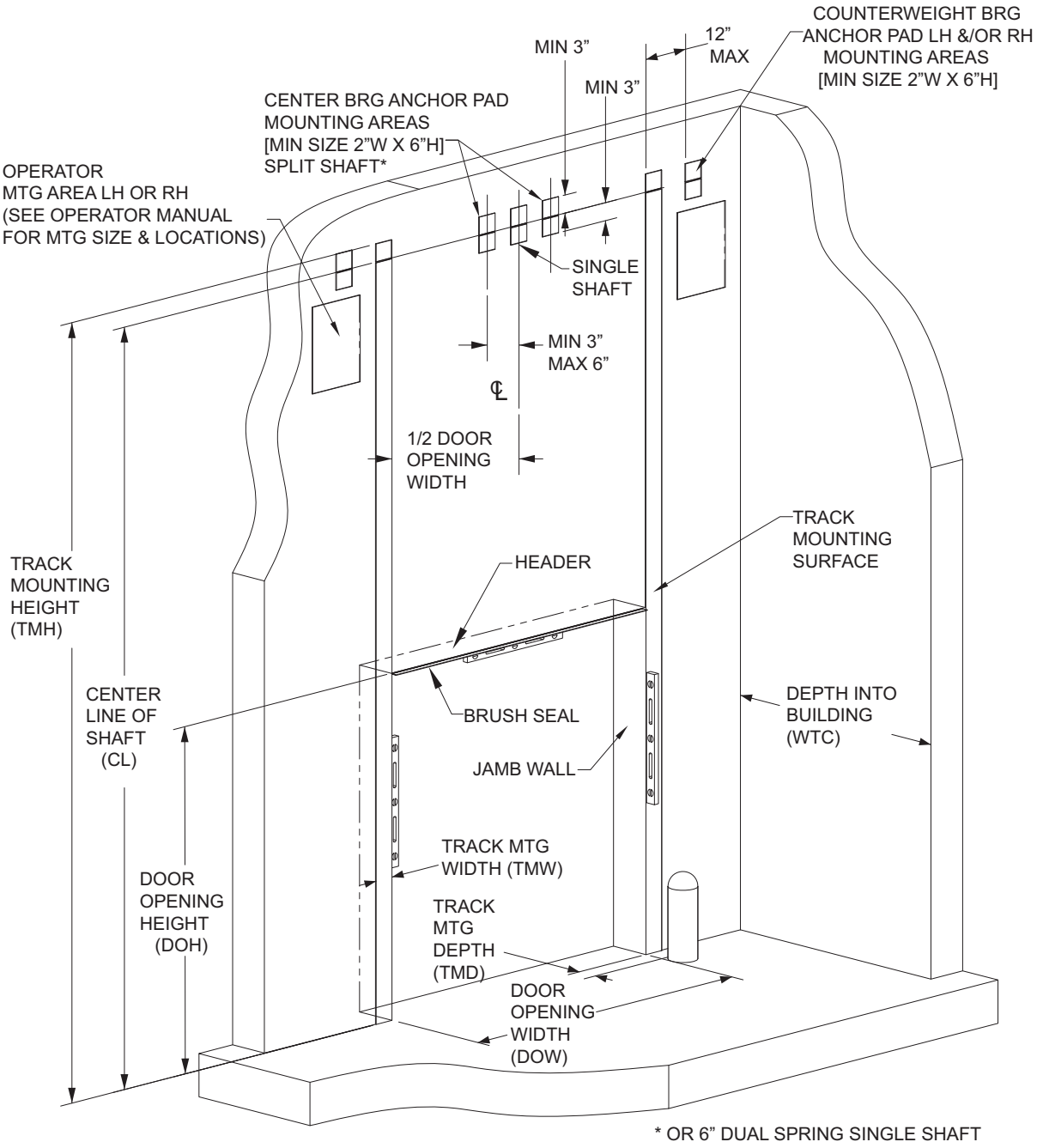
SITE PREPARATION (continued)

DOOR OPENING/TRACK MOUNTING SURFACE



* OR 6" DUAL SPRING SINGLE SHAFT

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TRACK ANCHORING APPROVED METHODS

STRUCTURE

1. Anchors MUST BE centered in the slotted holes of the steel tracks to provide the ability to adjust in or out if necessary. It is installers responsibility to make final adjustments to tracks to eliminate any light gaps between seals and jambs.
2. If mounting the track to wood it is not recommended that the tracks be mounted solely to a single 2" x 4", 2" x 6", 2" x etc. wood face jamb. Anchor through wood jamb and into structural member using a minimum 3/8" x 3" anchor backed with a 3/8" flat washer. Position anchors as listed in item 1 above. Fasteners must be appropriate for the material of the structural member.
3. If mounting the track to steel, position welds or anchors as listed in item 1 above.
4. If mounting the track to solid concrete, anchor tracks using a minimum 3/8" x 1-7/8" concrete sleeve anchor backed with a 3/8" flat washer. Position anchors as listed in item 1 above. If a wood face jamb exists, anchor through wood jamb and into concrete structure. Follow manufacturer's recommendations for installation.
5. If mounting to hollow block, it is important to use 3/8" expansion type anchors specifically designed for this use. 3/8"-16 Concrete Single or Double Expansion Shield Anchors are recommended. Follow manufacturer's recommendations for installation.

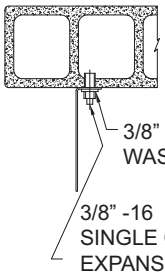
⚠WARNING

Failure to securely position and anchor door tracks per the TRACK SPACING dimension and tolerance (engraved on the door mounted Safety Decal) may allow the tracks to become too wide and allow the door to fall out of its tracks which could result in death or serious injury. Shims may be required between the track and wall surface to ensure the TRACK SPACING is maintained and that the tracks are anchored securely.

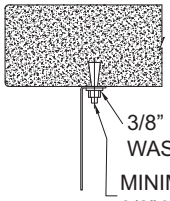
NOTE: ALL METHODS OF LOWER TRACK, UPPER TRACK AND BEARING BRACKET ANCHORING REQUIRE THAT THE TRACK SPACING DIMENSION TOLERANCES OF +/- 1/4" NOT TO BE EXCEEDED.

RECOMMENDED

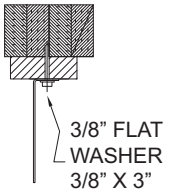
MOUNTING STEEL TRACK TO C-90 HOLLOW CONCRETE BLOCK



MOUNTING STEEL TRACK TO FILLED BLOCK OR SOLID CONCRETE



MOUNTING STEEL TRACK TO WOOD BACKED BY A SOLID MATERIAL



MOUNTING STEEL TRACK TO STRUCTURAL STEEL

* TYPE OF ANCHOR USED WILL BE SUITABLE FOR TYPE OF SOLID BACKING BEHIND WOOD.

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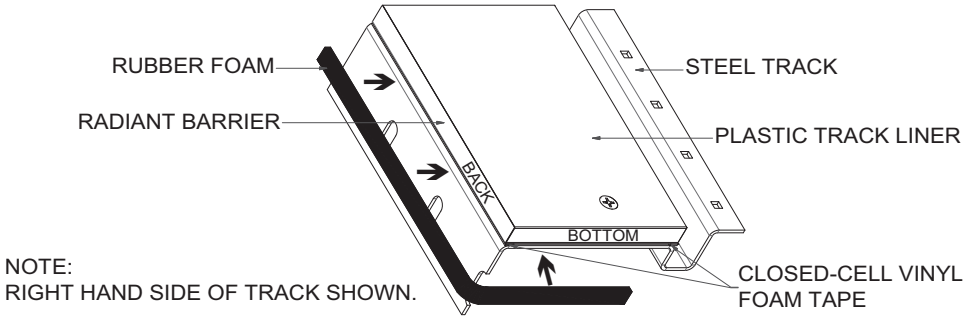
TRACK INSTALLATION

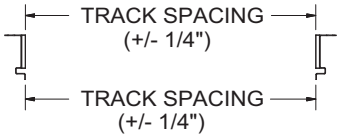
LOWER TRACK INSTALLATION

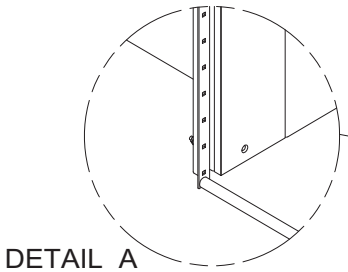
1. Locate the TRACK PRINT PDS (Production Detail Sheet). It illustrates the assembly of the track component parts.
2. Inspect track pieces and line up so that they match job specific track drawing that was supplied with door. If track drawing is missing, call a TKO Doors customer service representative for assistance. Locate the rubber foam in the Parts box.Remove the adhesive cover and apply it along the entire length on the back and bottom of the plastic track liner as shown on the illustration below. Repeat for the opposite side track and then continue with the lower track installation.

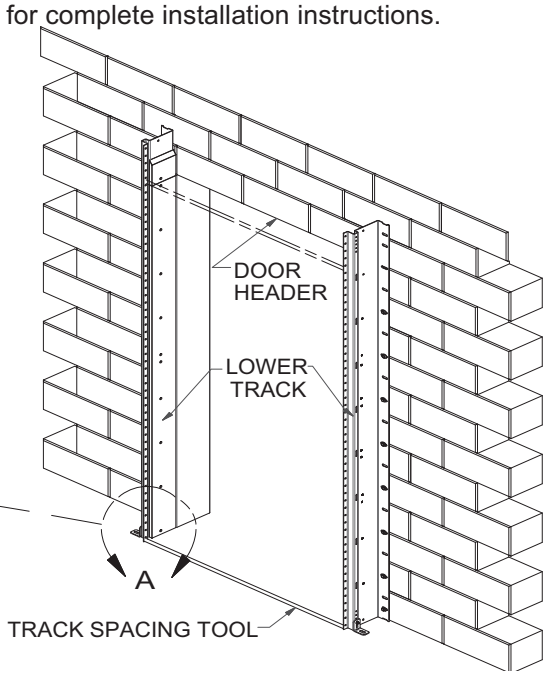


3. Check the floor pad for level. Tops of tracks MUST BE level with one another to within 1/4", or door will not operate smoothly. Shimming of tracks off the floor may be necessary.
4. While holding the lower left hand (LH) track against the jamb and flush to the opening, carefully level it. Use one of the approved fastening methods shown on pg. 8. Anchors/bolts with flat washers should be placed in the middle of the slotted holes of the steel tracks so tracks can be adjusted later if necessary. If steel tracks are to be welded in place, track MUST BE correctly placed.
5. The track spacing tool can now be used to set the right hand (RH) track. While holding the track against the jamb, place measuring tool on floor, then adjust track until tool ends are touching the inside faces of both tracks (see diagram below). Fasten track near floor.
6. Move track spacing tool to upper portion of track and repeat procedure described in step 5.
7. Verify TRACK SPACING: Measure track width starting at 3" from floor and every 3' on up. Track MUST BE kept at proper spacing while being centered in opening. TRACK SPACING tolerance is +/- 1/4". Track fasteners must be installed at the correct spacing as described in the methods illustrated on pg.8.
8. Solidify attachments to wall: Once TRACK SPACING is correct, be certain to tighten down all anchors/ bolts and finish all welds that may have been left incomplete to allow for moving of track.
9. Floor to track bracket installation: See page11 for complete installation instructions.

NOTE: Track spacing tool is intended to be used for all track sections- lower, upper, and radius sections.







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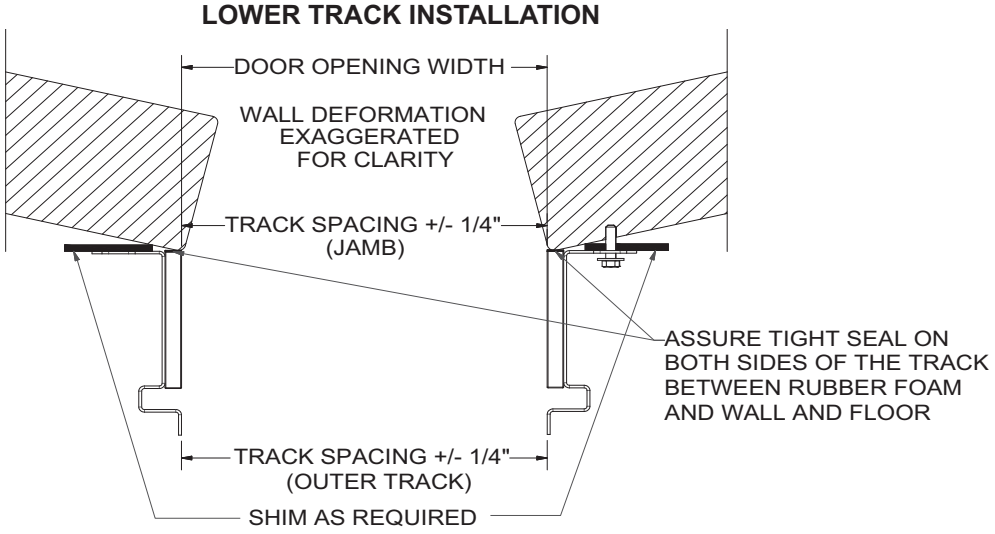
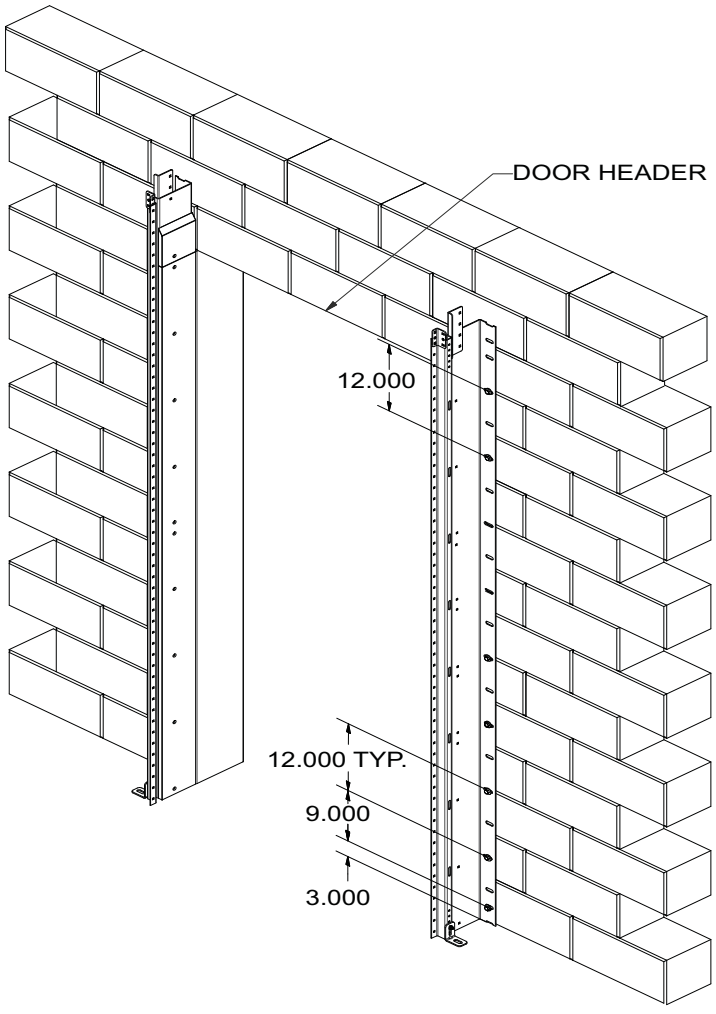
TRACK INSTALLATION (continued)

⚠ WARNING

Failure to securely position and anchor door tracks per the TRACK SPACING dimension and tolerance (engraved on the door mounted Safety Decal) may allow the door to fallout of its tracks which could result in death or serious injury. Shims may be required between the track and wall surface to ensure the TRACK SPACING is maintained and that the tracks are anchored securely.

LOWER TRACK INSTALLATION


DOOR OPENING WIDTH
WALL DEFORMATION EXAGGERATED FOR CLARITY
TRACK SPACING +/- 1/4" (JAMB)
ASSURE TIGHT SEAL ON BOTH SIDES OF THE TRACK BETWEEN RUBBER FOAM AND WALL AND FLOOR
TRACK SPACING +/- 1/4" (OUTER TRACK)
SHIM AS REQUIRED



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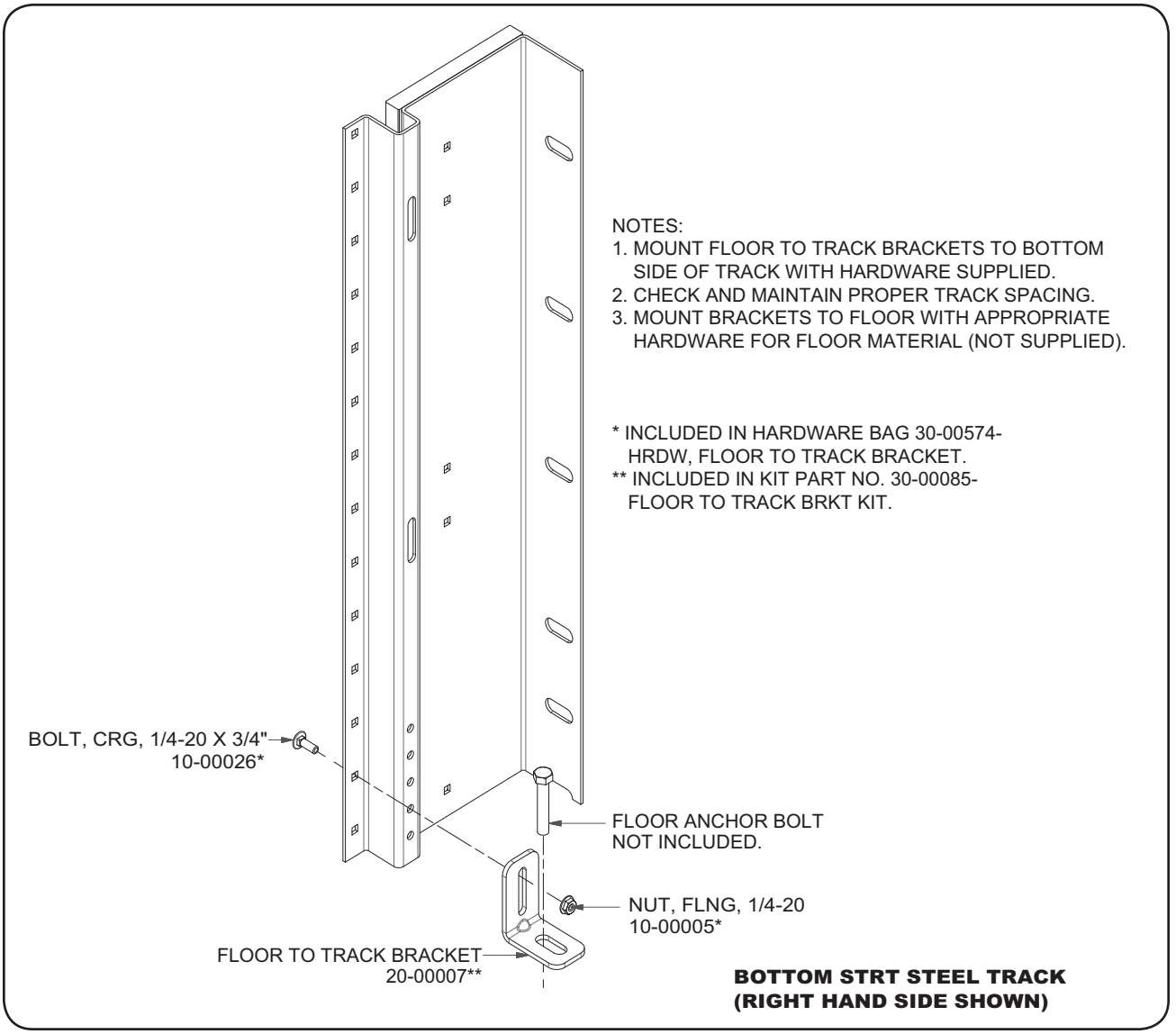
TRACK INSTALLATION (continued)

FLOOR TO TRACK BRACKET INSTALLATION

1. Mount floor to track brackets to both sides of track with the hardware supplied.
2. Check and maintain proper track spacing.
3. Mount brackets to floor with appropriate hardware for floor material (NOT supplied).
4. Proceed to upper track installation: Once lower tracks are securely mounted and spaced, prepare to install upper tracks. See pages 12 through 25 for upper track installation instructions.

FLOOR TO TRACK

BRACKET INSTALLATION


NOTES:
1. MOUNT FLOOR TO TRACK BRACKETS TO BOTTOM SIDE OF TRACK WITH HARDWARE SUPPLIED.
2. CHECK AND MAINTAIN PROPER TRACK SPACING.
3. MOUNT BRACKETS TO FLOOR WITH APPROPRIATE HARDWARE FOR FLOOR MATERIAL (NOT SUPPLIED).
* INCLUDED IN HARDWARE BAG 30-00574-HRDW, FLOOR TO TRACK BRACKET.
** INCLUDED IN KIT PART NO. 30-00085-FLOOR TO TRACK BRKT KIT.
BOLT, CRG, 1/4-20 X 3/4" 10-00026*
FLOOR ANCHOR BOLT NOT INCLUDED.
NUT, FLNG, 1/4-20 10-00005*
FLOOR TO TRACK BRACKET 20-00007**
BOTTOM STRT STEEL TRACK (RIGHT HAND SIDE SHOWN)

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TRACK INSTALLATION (continued)

UPPER STEEL TRACK INSTALLATION

The location of the INSTALLATION INSTRUCTIONS for the various UPPER TRACK STYLES are listed in the table below.

TRACK STYLE	INSTALLATION INSTRUCTIONS
Straight Vertical Upper Track Installation	Pages 14 through 15
Tilt T1 Upper Track Installation	Pages 16 through 19
Tilt T2 Upper Track Installation	Pages 20 through 23
Center Spring Pad Installation	Pages 24 through 25

⚠ WARNING

All TKO Dock Doors [except Straight Verticals (SV)] require Safety Spreader Bar cross bracing and Safety Cable Assemblies to be installed in the area from the header to the top end of panel travel per the installation instructions on pages 16 to 25. If the Safety Spreader Bars are not installed properly, the Tracks may spread, if impacted, and allow the door to fall. Failure to follow these instructions could result in death or serious injury.

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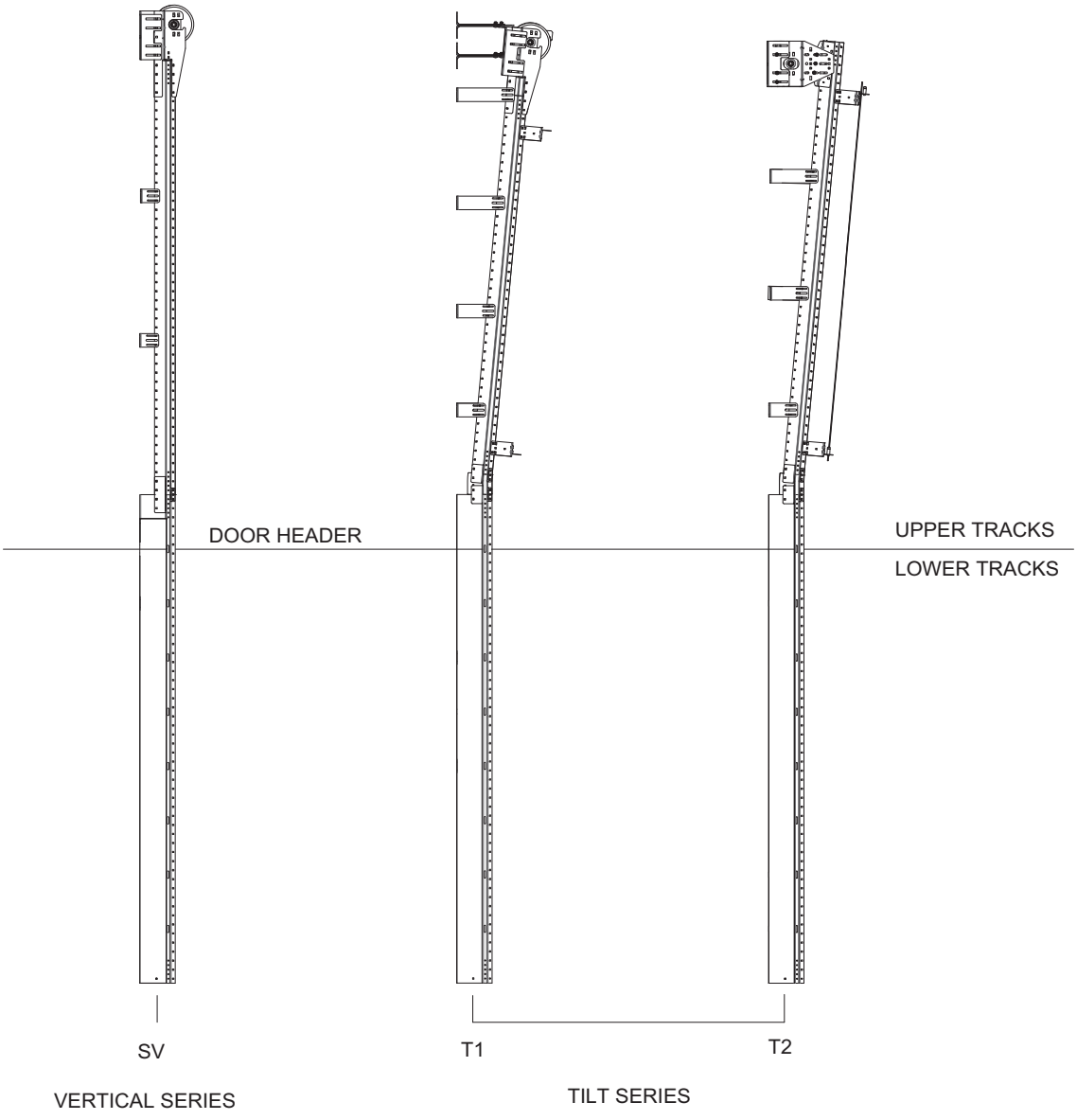
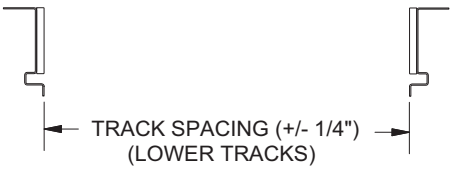
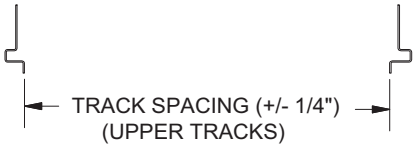
TRACK INSTALLATION (continued)

UPPER STEEL TRACK INSTALLATION







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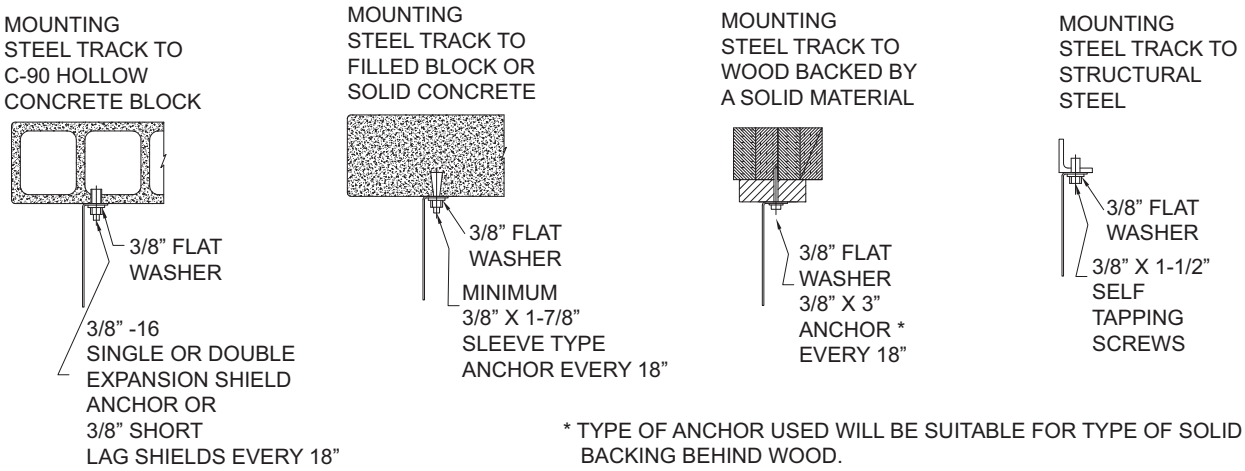
TRACK INSTALLATION (continued)

STRAIGHT VERTICAL UPPER TRACK INSTALLATION

1. Locate the TRACK PRINT PDS (Production Detail Sheet). It illustrates the assembly of the track component parts.
2. Check how track is assembled: Upper tracks will have bearing plates mounted to them. See job specific track drawing to determine how parts fit together.
3. Attach upper tracks to lowers: Attach pieces with 1/4-20x3/4" carriage bolts and flange nuts. Pieces MUST fit together to give a smooth transition. Any sharp edges may cause plunger damage or cable failure.

NOTE: ALL METHODS OF LOWER TRACK, UPPER TRACK AND BEARING BRACKET ANCHORING REQUIRE THAT THE TRACK SPACING DIMENSION TOLERANCES OF +/- 1/4" NOT TO BE EXCEEDED.

RECOMMENDED


MOUNTING STEEL TRACK TO C-90 HOLLOW CONCRETE BLOCK
3/8" FLAT WASHER
3/8" -16 SINGLE OR DOUBLE EXPANSION SHIELD ANCHOR OR 3/8" SHORT LAG SHIELDS EVERY 18"
MOUNTING STEEL TRACK TO FILLED BLOCK OR SOLID CONCRETE
3/8" FLAT WASHER
MINIMUM 3/8" X 1-7/8" SLEEVE TYPE ANCHOR EVERY 18"
MOUNTING STEEL TRACK TO WOOD BACKED BY A SOLID MATERIAL
3/8" FLAT WASHER
3/8" X 3" ANCHOR * EVERY 18"
MOUNTING STEEL TRACK TO STRUCTURAL STEEL
3/8" FLAT WASHER
3/8" X 1-1/2" SELF TAPPING SCREWS

* TYPE OF ANCHOR USED WILL BE SUITABLE FOR TYPE OF SOLID BACKING BEHIND WOOD.

NOTICE

Before mounting End Bearing Plates to wall, level track and also verify upper track is plumb with lower track. Shims may be required between the Bearing Plate Mounting Bracket and mounting surface.

4. Level left hand track then mount bearing plate mounting bracket to wall (minimum of 2 anchors per bracket) with one of the Recommended Anchoring Methods illustrated above. Follow manufacturer's recommendations for anchor installation.

NOTE: End Bearing Plate mounting bracket is slotted for adjustment to wall. Loosen bracket bolts and adjust as necessary to obtain plumb condition with lower track.

5. Secure upper track to wall with 4" track mounting brackets (2 per side) at equal spacing (See pg. 15). Attach to track with 1/4-20 x 3/4" carriage bolts and flange nuts. Mount track mounting brackets to the wall with one of the Recommended Anchoring Methods illustrated above. Follow manufacturer's recommendations for anchor installation.
6. Measure over to the opposite track and position it at the track spacing dimension engraved on the Safety Decal located on the 3rd panel of the door. Repeat steps 4 and 5 above. Follow manufacturer's recommendations for anchor installation.

⚠ WARNING

Failure to securely position and anchor door tracks per the TRACK SPACING dimension and tolerance (engraved on the door mounted Safety Decal) may allow the door to fallout of its tracks which could result in death or serious injury. Tracks must be mounted straight, level, and on the same plane as lower tracks.

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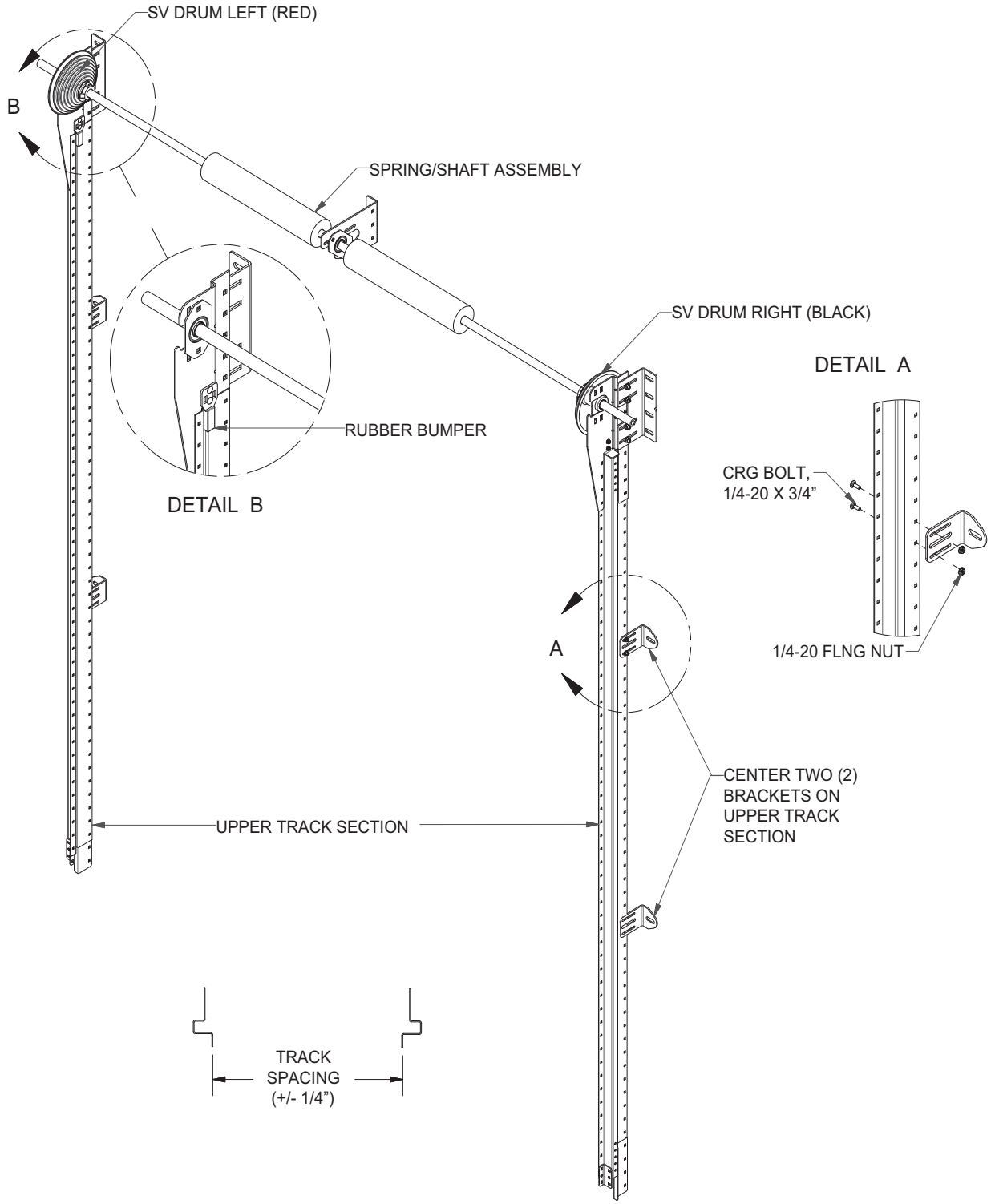
TRACK INSTALLATION (continued)

STRAIGHT VERTICAL UPPER TRACK INSTALLATION



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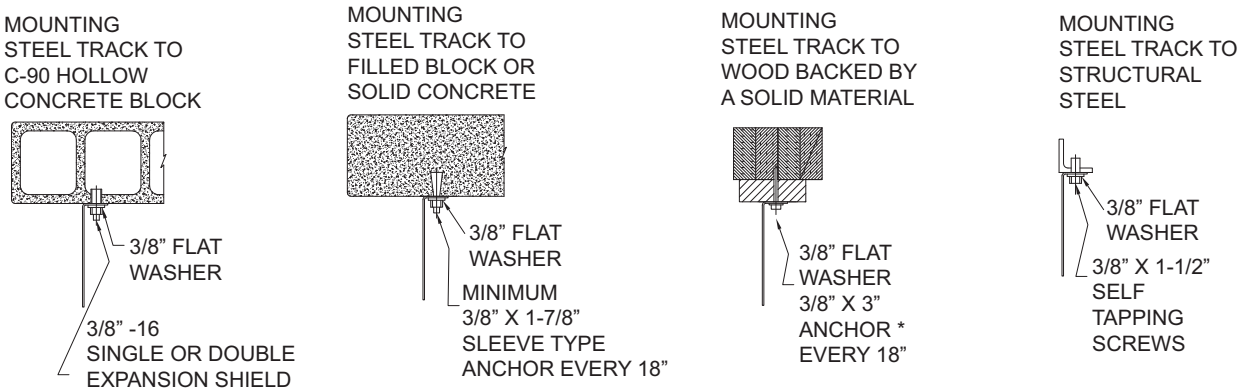
TRACK INSTALLATION (continued)

TILT T1 UPPER TRACK INSTALLATION

1. Locate the TRACK PRINT PDS (Production Detail Sheet). It illustrates the assembly of the track component parts.
2. Attach upper tracks to lowers: Use provided splice angles. Attach pieces with 1/4-20x3/4" carriage bolts and flange nuts. Pieces MUST fit together to give a smooth transition. Any sharp edges may cause plunger damage. Track will angle away from wall at approximately a 5° angle. (Rise 12", Run 1")

NOTE: ALL METHODS OF LOWER TRACK, UPPER TRACK AND BEARING BRACKET ANCHORING REQUIRE THAT THE TRACK SPACING DIMENSION TOLERANCES OF +/- 1/4" NOT TO BE EXCEEDED.

RECOMMENDED


MOUNTING STEEL TRACK TO C-90 HOLLOW CONCRETE BLOCK
3/8" FLAT WASHER
3/8" -16 SINGLE OR DOUBLE EXPANSION SHIELD ANCHOR OR 3/8" SHORT LAG SHIELDS EVERY 18"
MOUNTING STEEL TRACK TO FILLED BLOCK OR SOLID CONCRETE
3/8" FLAT WASHER
MINIMUM 3/8" X 1-7/8" SLEEVE TYPE ANCHOR EVERY 18"
MOUNTING STEEL TRACK TO WOOD BACKED BY A SOLID MATERIAL
3/8" FLAT WASHER 3/8" X 3" ANCHOR * EVERY 18"
MOUNTING STEEL TRACK TO STRUCTURAL STEEL
3/8" FLAT WASHER
3/8" X 1-1/2" SELF TAPPING SCREWS

* TYPE OF ANCHOR USED WILL BE SUITABLE FOR TYPE OF SOLID BACKING BEHIND WOOD.

3. Attach top track mounting bracket (normally the longest one provided) to upper track section with 1/4-20 x 3/4" carriage bolts and flange nuts. This bracket should be placed 2" to 6" below bearing plate mounting bracket (See detail D on page 17). Next, level the track then anchor bracket to mounting surface using one of the Recommended Anchoring Methods illustrated above. Follow manufacturer's recommendations for anchor installation. Verify the track is level before continuing.

⚠ WARNING

Failure to securely position and anchor door tracks per the TRACK SPACING dimension and tolerance (engraved on the door mounted Safety Decal) may allow the door to fallout of its tracks which could result in death or serious injury.

4. Measure over to the opposite track and position at the track spacing dimension engraved on the Safety Decal located on the panel of the door. Mark top track mounting bracket anchor location on wall. Secure it using one of the Approved Anchoring Methods illustrated above.

   (Note: Verify the distance between the mounting surface and the top edge of the track is the same on both sides.)
5. Fill in the rest of the track mounting brackets (both sides) every 22" to 26" from top track mounting bracket down. (See page 17)
6. Attach C-channel to bearing plate mounting brackets to run from the backside of one bearing bracket to the other. Attach C-channel to top set of holes on bearing plate mounting bracket with 3/8–16 x 1" carriage bolts, flange nuts and flat washers. Verify that track spacing is still correct and tracks are level.
7. Attach hardware to C-channel: Attach adjustable track mounting brackets to top and bottom of C-channel in the center of the assembly with 1/4-20 x 3/4" carriage bolts and flange nuts (See detail C, page 17). Anchor adjustable track mounting brackets to wall- minimum of two (2) anchors and two (2) 3/8" flat washers per bracket. These prevents C-channel from twisting and stabilizes the upper track section (See Detail C, page 17). Mount center bearing brackets to C-channel with 3/8-16 x 1" carriage bolts and flange nuts. Location may vary according to quantity and length of springs.

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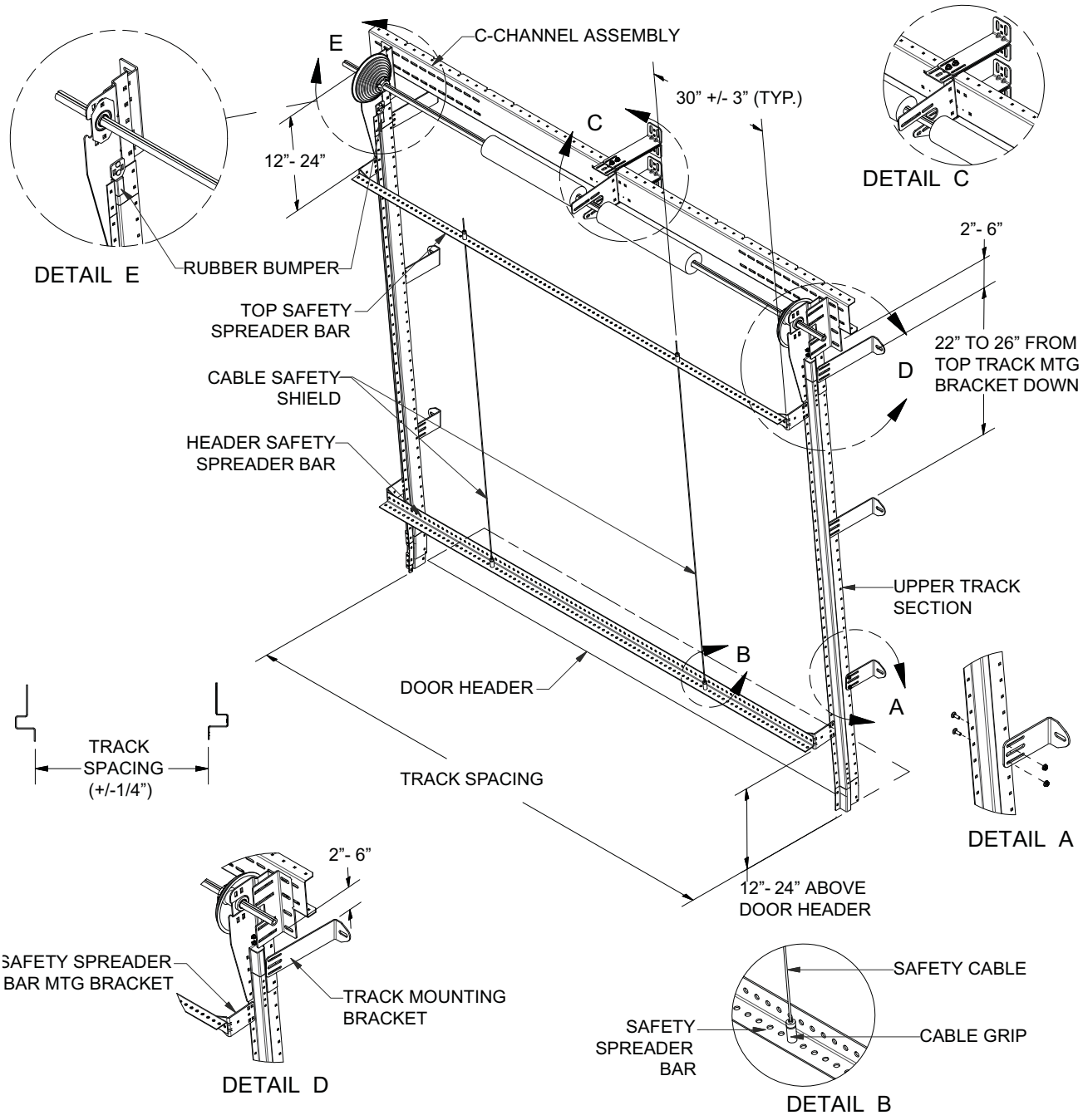
TRACK INSTALLATION (continued)

TILT T1 UPPER TRACK INSTALLATION



⚠ WARNING

Failure to securely position and anchor door tracks per the TRACK SPACING dimension and tolerance (engraved on the door mounted Safety Decal) may allow the door to fallout of its tracks which could result in death or serious injury.

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TRACK INSTALLATION (continued)

TILT T1 UPPER TRACK INSTALLATION (continued)

8. Install safety spreader bar assemblies: Mount upper and lower safety spreader bar brackets to upper track with 1/4-20 x 3/4" carriage bolts and flange nuts. Brackets need to be attached 12" to 24" above header and 12" to 24" below top of tracks (See page 19). Run two (2) safety spreader bars horizontally from brackets and attach to brackets with 5/16-18 x 3/4" carriage bolts and flange nuts. Repeat for the other side of the door opening.
9. Install two (2) Safety Cables: Bolt two safety cable spool ends to the top horizontal safety spreader bar approximately 30" from each end. Attach two cable grip devices to the bottom safety spreader bar approximately 30" from each end. Feed each cable through the top and bottom cable grip devices and pull tight. Trim excess wire.

⚠ WARNING

All TKO Dock Doors [except Straight Verticals (SV)] require Safety Spreader Bar cross bracing and Safety Cable Assemblies to be installed in the area from the header to the top end of panel travel per the installation instructions on pages 17 to 23. If the Safety Spreader Bars are not installed, the Tracks may spread, if impacted, and allow the door to fall. Failure to follow these instructions could result in death or serious injury.

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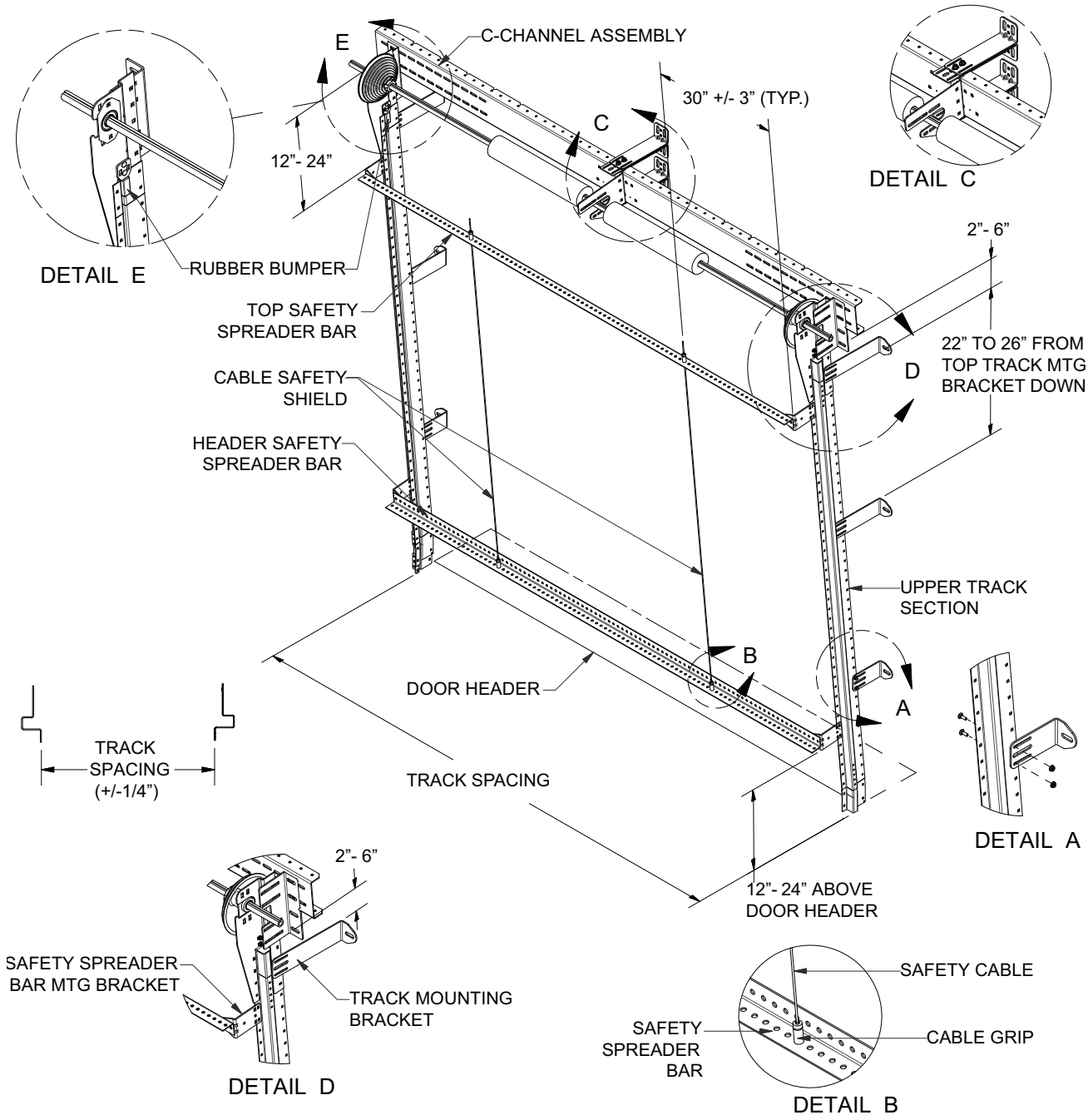
TRACK INSTALLATION (continued)

TILT T1 SAFETY SPREADER BAR INSTALLATION



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TRACK INSTALLATION (continued)

TILT T2 UPPER TRACK INSTALLATION

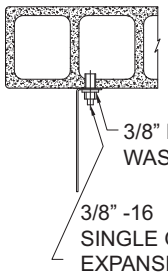
1. Locate the TRACK PRINT PDS (Production Detail Sheet). It illustrates the assembly of the track component parts.
2. Attach upper tracks to lowers: Use provided splice angles. Attach pieces with 1/4-20 x 3/4" carriage bolts and flange nuts. Pieces MUST fit together to give a smooth transition. Any sharp edges may cause plunger damage or cable failure. Track will angle away from wall at approximately a 5° angle (Rise 12", Run 1").
3. Attach end bearing plate to track: Attach End Bearing Plate to offset bearing bracket at factory established center line (C/L) of shaft with 3/8-16 x 1" carriage bolts and flange nuts (offset bearing bracket is factory attached to upper track section). Level Track then mount End Bearing Plate to the wall (minimum of 2 anchors per plate) with one of the Recommended Anchoring Methods illustrated below. Follow manufacturer's recommendations for anchor installation.
4. Repeat for opposite side, measuring to verify track spacing is correct before securing end bearing plate. End Bearing Plate MUST BE mounted in the same position as opposite side before tightening bolts.
5. Attach track mounting brackets: Attach long leg of track mounting brackets to upper track section with 1/4-20 x 3/4" carriage bolts and flange nuts. Fill in the rest of the track mounting brackets (both sides) every 22" to 26" above the door header. (See page 21)

   Mount brackets to the wall with one of the Recommended Anchoring Methods illustrated below. Follow manufacturer's recommendations for anchor installation.

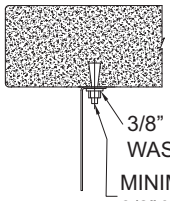
NOTE: ALL METHODS OF LOWER TRACK, UPPER TRACK AND BEARING BRACKET ANCHORING REQUIRE THAT THE TRACK SPACING DIMENSION TOLERANCES OF +/- 1/4" NOT TO BE EXCEEDED.

RECOMMENDED

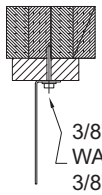
MOUNTING STEEL TRACK TO C-90 HOLLOW CONCRETE BLOCK



MOUNTING STEEL TRACK TO FILLED BLOCK OR SOLID CONCRETE



MOUNTING STEEL TRACK TO WOOD BACKED BY A SOLID MATERIAL



MOUNTING STEEL TRACK TO STRUCTURAL STEEL

* TYPE OF ANCHOR USED WILL BE SUITABLE FOR TYPE OF SOLID BACKING BEHIND WOOD.

⚠ WARNING

Failure to securely position and anchor door tracks per the TRACK SPACING dimension and tolerance (engraved on the door mounted Safety Decal) may allow the door to fallout of its tracks which could result in death or serious injury.

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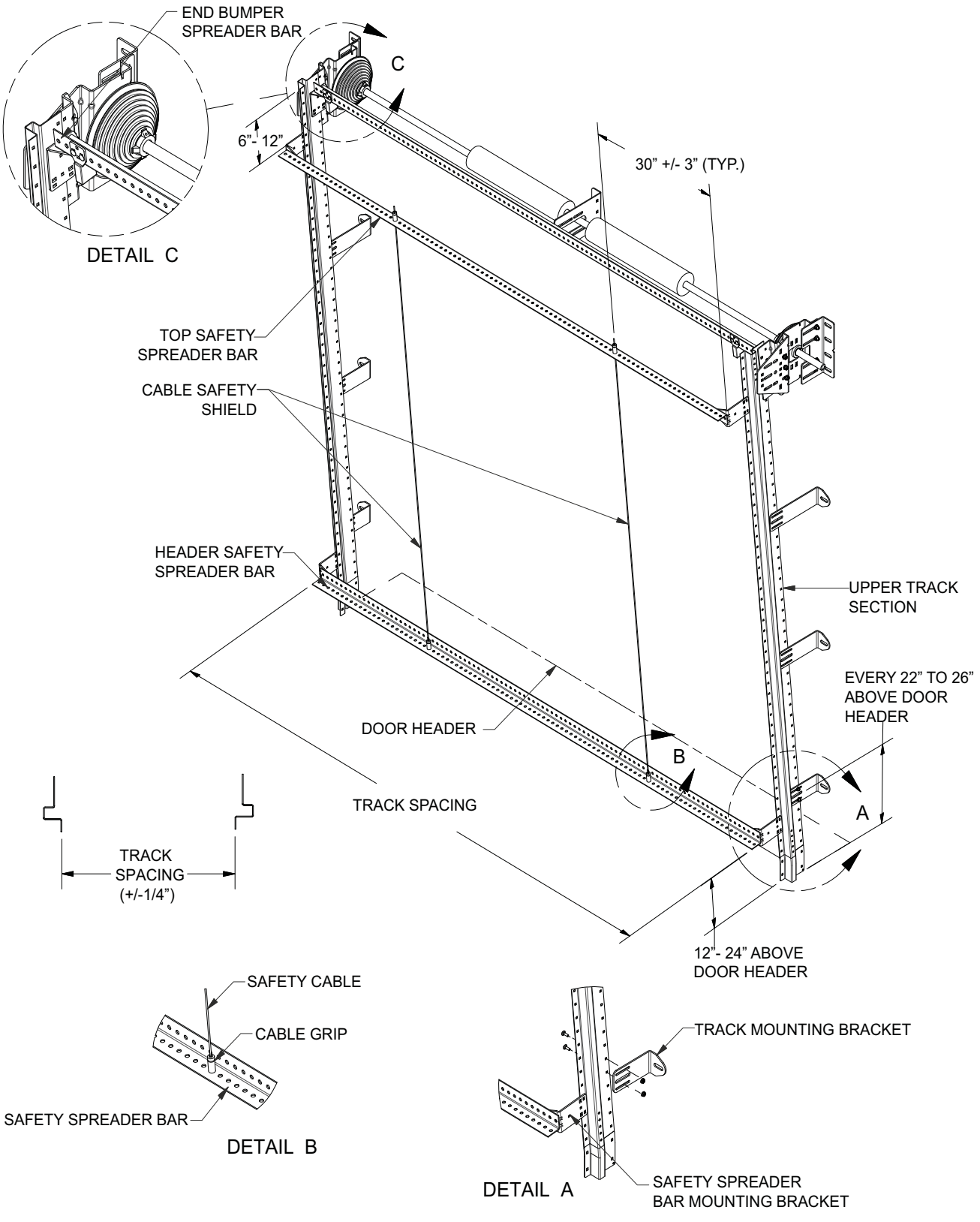
TRACK INSTALLATION (continued)

TILT T2 UPPER TRACK INSTALLATION



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TRACK INSTALLATION (continued)

TILT T2 UPPER TRACK INSTALLATION (continued)

6. Install safety spreader bar assemblies: Mount upper and lower safety spreader bar brackets to front face of track using 1/4-20 x 3/4" carriage bolts and flange nuts. Brackets need to be placed 12" to 24" above door header and 6" to 12" below top of tracks.(See page 23)

   Run two (2) safety spreader bars horizontally from brackets using 5/16-18 x 3/4" carriage bolts and flange nuts. Repeat for the other side of the door opening.

7. Install two (2) Safety Cables: Bolt two safety cable spool ends to the top horizontal safety spreader bar approximately 30" from each end. Attach two cable grip devices to the bottom safety spreader bar approximately 30" from each end. Feed each cable through the top and bottom cable grip devices and pull tight. Trim excess wire.

⚠ WARNING

All TKO Dock Doors [except Straight Verticals (SV)] require Safety Spreader Bar cross bracing and Safety Cable Assemblies to be installed in the area from the header to the top end of panel travel per the installation instructions on pages 17 to 23. If the Safety Spreader Bars are not installed, the Tracks may spread, if impacted, and allow the door to fall. Failure to follow these instructions could result in death or serious injury.

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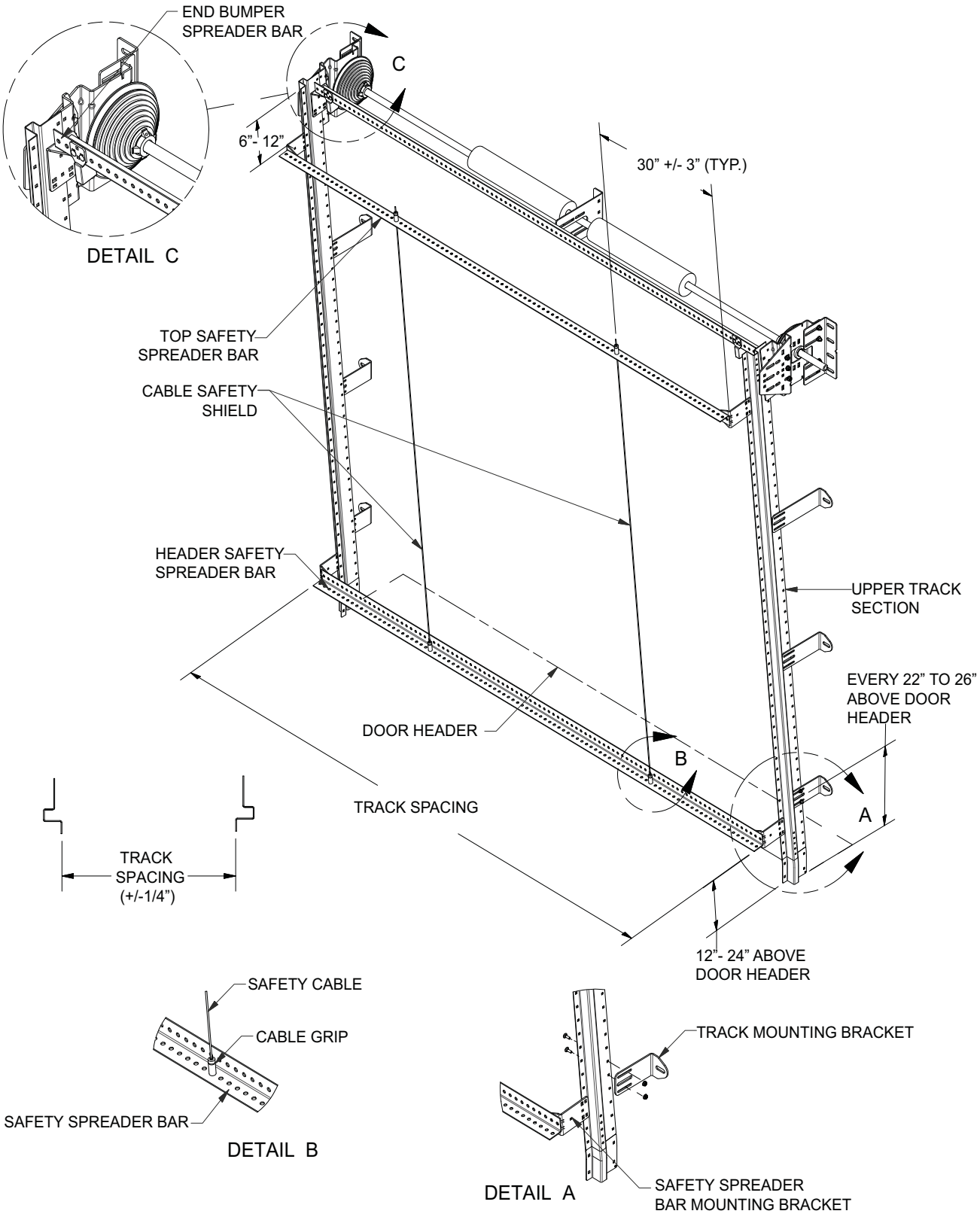
TRACK INSTALLATION (continued)

TILT T2 SAFETY SPREADER BAR INSTALLATION



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PANEL INSTALLATION

⚠ WARNING

DO NOT allow side seals to compress in any way before panels are actually stacked in opening.

COMPONENT IDENTIFICATION

1. Identify panels:
   - Inspect panels for any missing or damaged panels. Call TKO doors or local distributor/ dealer if assistance is required.
2. Bottom panel:
   - The bottom panels have a horizontal (dual bulb) seal on the top of the panel and a loop seal on the bottom.
   - This panel is 48" high.
3. Second panel:
   - The Second panel has a horizontal (dual bulb) seal on the top and bottom of the panel (except for 8FT high door where this is also the top panel- see top panel identification below).
   - This panel could be 48" or 36" high depending on door height.
   - If a window panel was supplied, it is typically placed in the 2nd panel from bottom position.

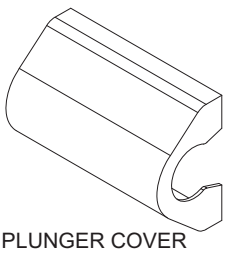
⚠ WARNING

Fixed plungers are required on all panels.

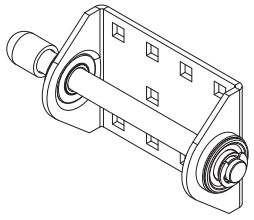
4. Top panel:
   - The top panels have a T-Slot seal on the top of the panel and a horizontal (dual bulb) seal on the bottom.
   - This panel could be 12", 18", 24", 30", 36", 42" or 48" high depending on door height.

NOTE: For top panel pickup cable attachment brackets the cable must be attached to the outer most location on the bracket. (See illustration on pg. 27)

PLUNGER DESCRIPTION



PLUNGER COVER



FIXED ROLLER PLUNGER ASSY
RFP 30-00676

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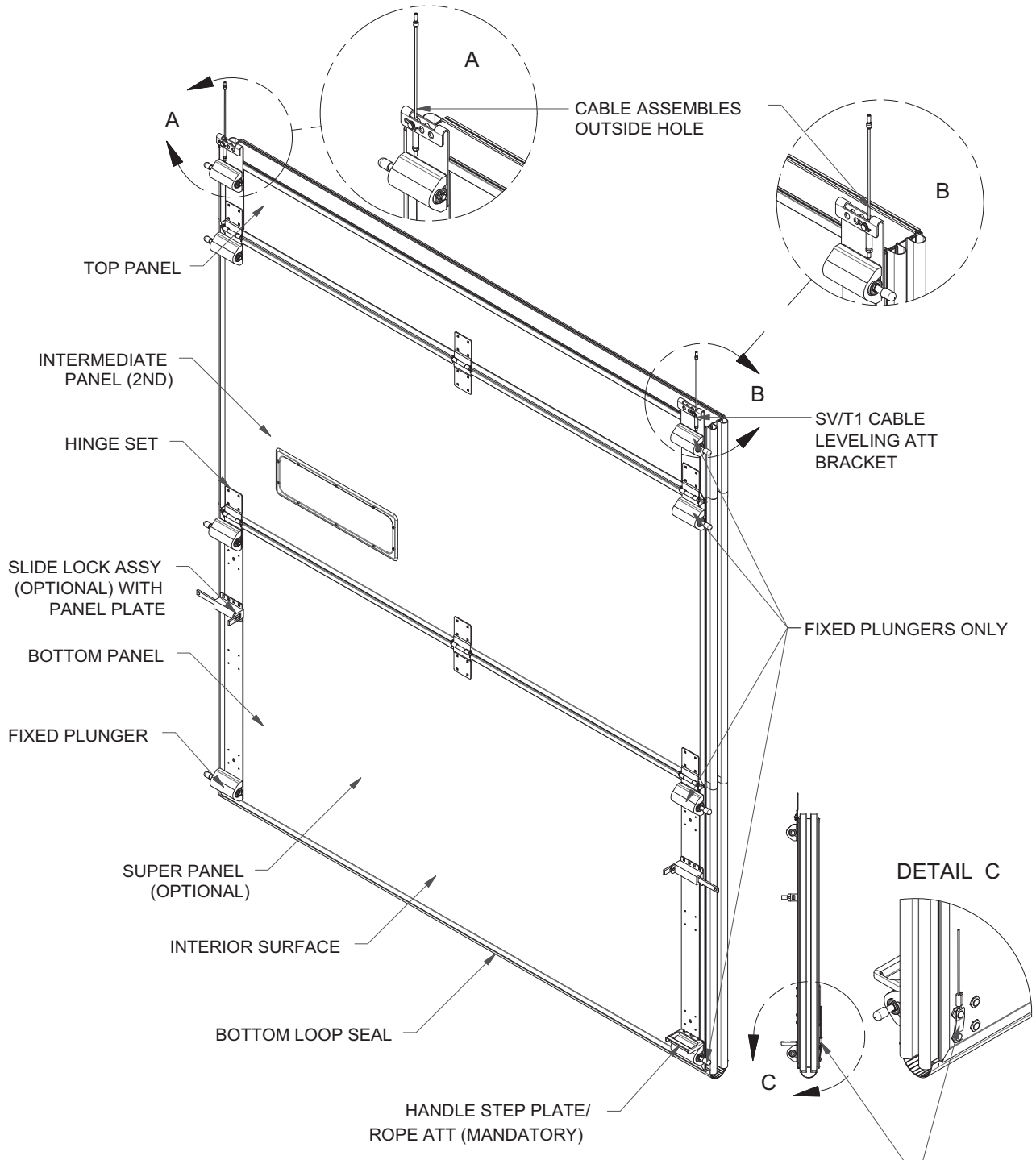
PANEL INSTALLATION (continued)

⚠WARNING

Fixed plungers are required on all panels.

FULL DOOR PANEL ASSEMBLY



NOTE:
3-PANEL DOOR SHOWN.

* CABLES MAY ATTACH TO HIGHER PANELS IN T2 APPLICATIONS. FOR CABLE ATT BRACKET POSITIONS SEE THE INSTALLER DETAIL SHEET (IDS).

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PANEL INSTALLATION (continued)

PANEL STACKING - OVERVIEW

1. Assembling panels:
   - Identify any specific door order specifications including any/all panel accessory options before stacking Panels . See Panel PDS (Production Detail Sheet) and Panel Hardware PDS (Production Detail Sheet) in the Owner's Parts Book.
   - Identify the proper cable attachment bracket mounting location.
   - Identify the # of door panels per door, and their stacking sequence.
   - Lube plunger rods with Silicone Spray prior to stacking panels. With covers off, spray plunger rods thoroughly so that contact points of housing/rods are covered.
   - For top-pickup styles (SV and T1), install cables to the outside set of holes of the cable leveling brackets (See Detail D on pg. 29).

⚠ WARNING

Fixed plungers are required on all panels.

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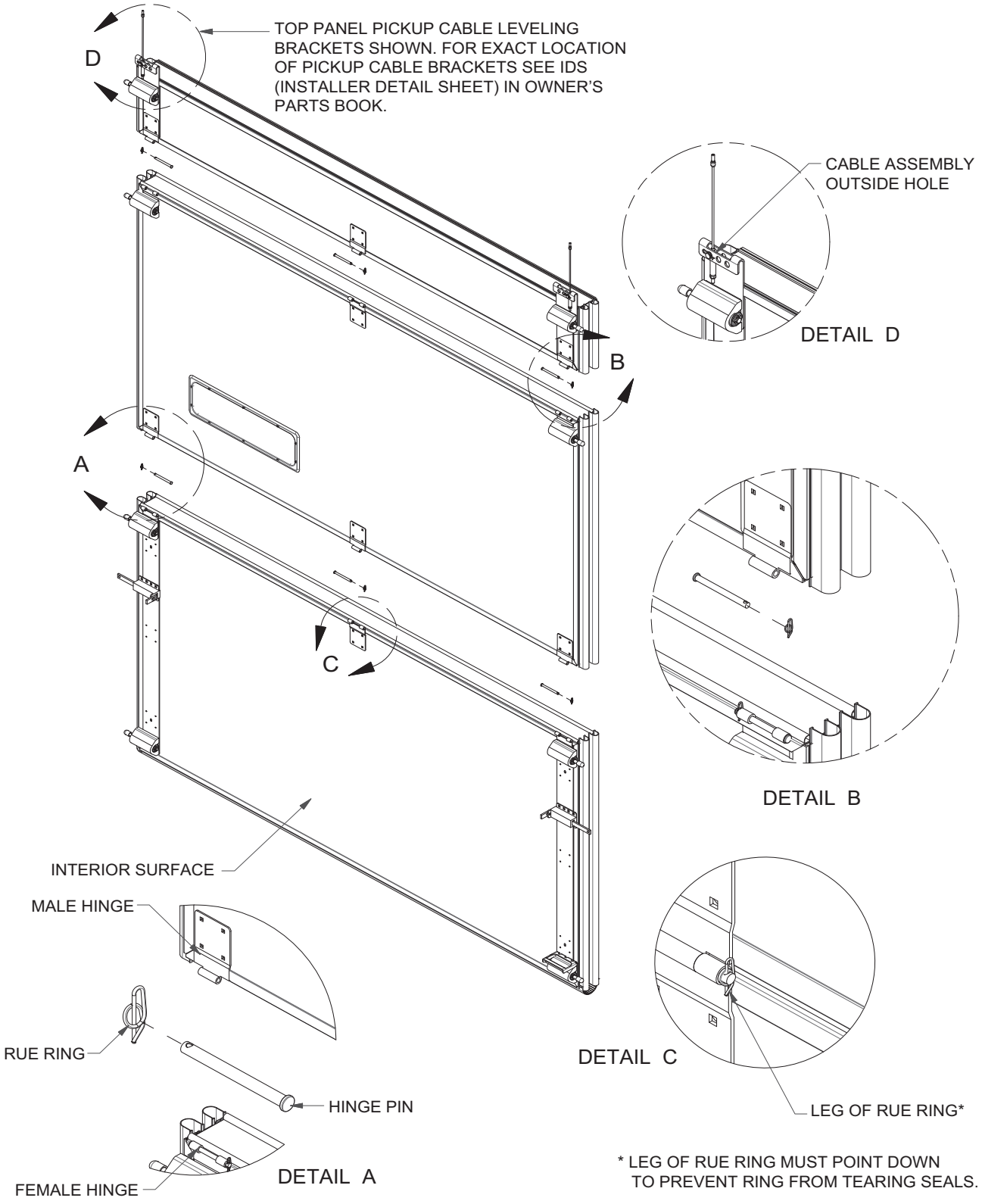
PANEL INSTALLATION (continued)

PANEL STACKING



* LEG OF RUE RING MUST POINT DOWN TO PREVENT RING FROM TEARING SEALS.

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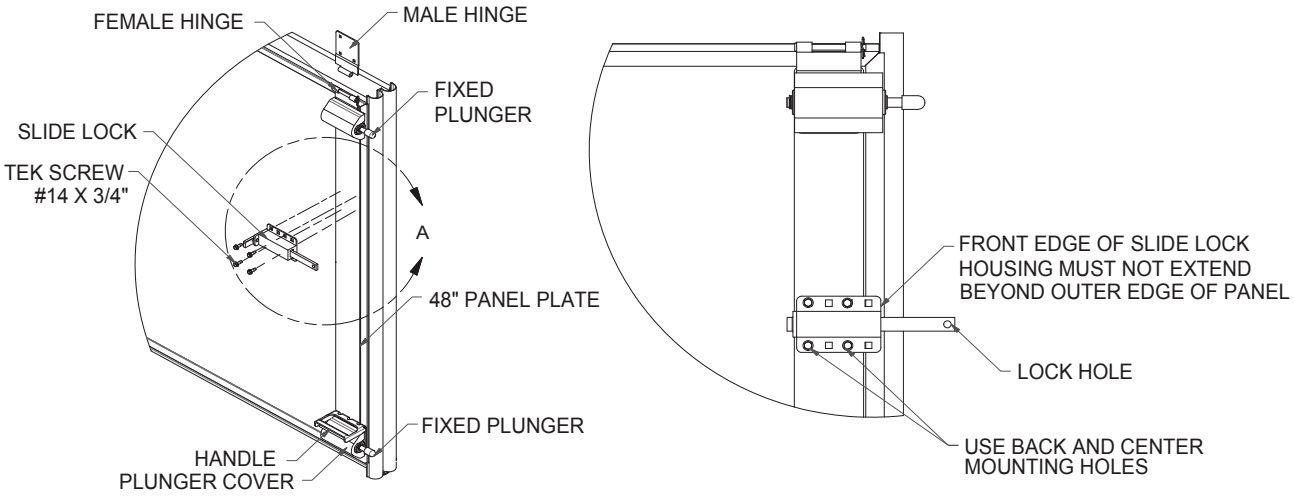
PANEL INSTALLATION (continued)

SLIDE LOCK INSTALLATION

1. Identify quantity of slide lock assemblies to be installed and customer desired location(s).
2. Position slide lock assembly so that slide lock bar is level and in-line with slide lock hole on track when door is fully closed and creating proper seal at bottom.
3. Install slide lock assembly to panel plate using (4) TEK screws. Slide lock bar MUST extend through the track allowing proper clearance of lock hole when bar is engaged.

SLIDE LOCK INSTALLATION



LINTEL SEAL INSTALLATION

A. Top Panel Blade Seal (Factory Installed)

1. Cycle then level door.
2. Loosen RH and LH blade seal extension screws.
3. Slide extensions outward to obtain a positive seal to tracks (See pg.45).

B. Header Blade Seal- Optional (2" blade on 1" straight retainer-included for installation on header)

Header Installation:

1. Measure each individual jamb width at the header, then cut retainer and blade to these exact measurements.
2. Install blade on to retainer.
3. Hold retainer (flat side up) to header and adjust in towards the panel just enough to create a good seal across panel width.

NOTICE

Forcing the blade too far into panel will result in excessive drag and poor door opeartion.

4. Install assembly to header using appropriate fasteners (not included) at each end, then every 15" to 20".

C. Brush Seal (Single 2" brush on 1" straight retainer are sent as standard.)

1. Brush seals may be mounted to header or panel top. Choice determined by best sealing result.
2. Follow same installation instructions outlined for the Header Blade Seal above.

Top Panel Installation:

1. Measure width of top panel (less side seals) then cut aluminum retainer to this length.
2. Measure track width just above top of door then cut brush to this measurement.
3. Install brush on to retainer (position so brush ends are equal distance away from retainer ends).
4. Position retainer (flat side down) so it is even with panel ends, then adjust in towards header/wall just enough to create a uniform seal across the opening width.

NOTICE

Forcing the blade too far into header/wall will result in excessive drag and poor door opeartion.

5. Install assembly to top panel using provided fasteners at each end, then every 15" to 20".

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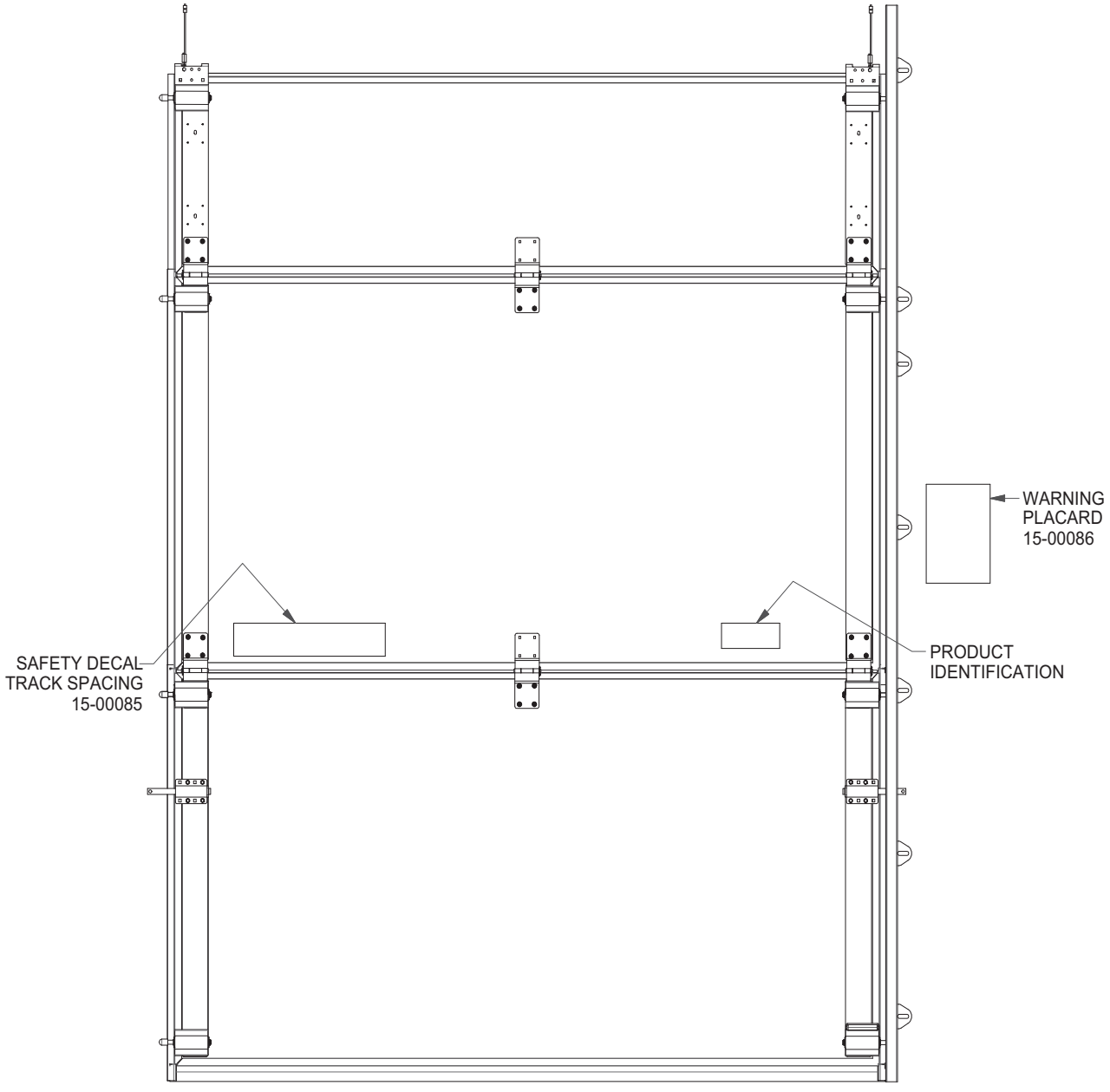
PANEL INSTALLATION (continued)

DECALS & PLACARD INSTALLATION

The Safety Decal (Part Number 15-00085) and Product Identification Decal are factory installed to the second panel as shown in the illustration below.

The installer MUST post the Warning Placard next to the door in a viewable location for the operators of the door.

DECALS & PLACARD INSTALLATION



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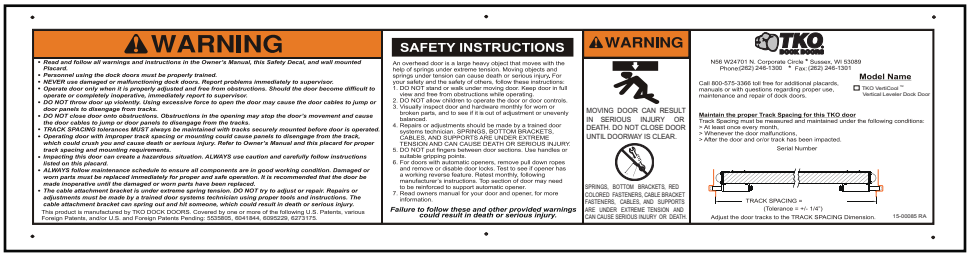
PANEL INSTALLATION (continued)

DECALS & PLACARD INSTALLATION (continued)

The Safety Decal contains the Track Spacing Dimension, Serial Number, and Model Name. Inspect each door every 30 days to ensure that this decal is still fastened to the door and is legible. If the Safety Decal is not present, contact the factory to obtain a replacement Safety Decal.


WARNING
SAFETY INSTRUCTIONS
WARNING
MOVING DOOR CAN RESULT IN SERIOUS INJURY OR DEATH. DO NOT CLOSE DOOR UNTIL DOORWAY IS CLEAR.
Model Name
TRACK SPACING =
(Tolerance = +/- 1/4")
Adjust the door tracks to the TRACK SPACING Dimension.
15-00085 RA

The Warning Placard (Part Number 15-00086) illustrated below must be posted by the installer next to the door visible to the users of the door. Inspect each door every 30 days to ensure that this placard is still posted near the door and is legible. Replace as necessary.

POST NEAR DOCK DOOR

⚠ WARNING

• Read and follow all warnings and instructions in the Owner's Manual, door mounted Safety Decal, and this wall mounted Placard.

• Personnel using the dock doors must be properly trained.

• NEVER use damaged or malfunctioning dock doors. Report problems immediately to supervisor.

• Operate door only when it is properly adjusted and free of obstructions. Should the door become difficult to operate or completely inoperative, immediately report to supervisor.

• DO NOT throw door up violently. Using excessive force to open the door may cause the door cables to jump or door panels to disengage from tracks.

• DO NOT close door onto obstructions. Obstructions in the opening may stop the door's movement and cause the door cables to jump or door panels to disengage from tracks.

• TRACK SPACING tolerances MUST always be maintained with tracks securely mounted before door is operated.

• Operating door with improper TRACK SPACING or mounting could cause panels to disengage from the track, which could crush you and result in death or serious injury. Refer to Owner's Manual and Safety Decal mounted on door for proper TRACK SPACING and mounting requirements.

• Impacting this door can create a hazardous situation. ALWAYS use caution and carefully follow instructions listed on this Placard and the door mounted Safety Decal.

• ALWAYS follow maintenance schedule to ensure all components are in good working condition. Damaged or worn parts must be replaced immediately for proper and safe operation. It is recommended that the door be made inoperative until the damaged or worn parts have been replaced.

• The cable attachment bracket is under extreme spring tension. DO NOT try to adjust or repair. Repairs or adjustments must be made by a trained door systems technician using proper tools and instructions. The cable attachment bracket can spring out and hit someone, which could result in death or serious injury.

DOOR OPERATION

To operate, keep door in full view, slowly raise door using manufacturer supplied handle(s) and lower door by slowly pulling on supplied pull down rope. NEVER apply force in a manner which would cause the panels to disengage from the track. If door has an automatic opener, remove pull rope from door and follow instructions supplied with opener.

Failure to follow these and other provided warnings could result in death or serious injury.

TKO DOCK DOORS

Call for additional placards, manuals or with questions regarding proper use, maintenance and repair of dock doors.

N56 W24701 N. Corporate Circle • Sussex, WI 53089

Phone: (262) 820-1217 • Fax: (262) 820-1273

P/N: 15-00086 REV: A 10/10

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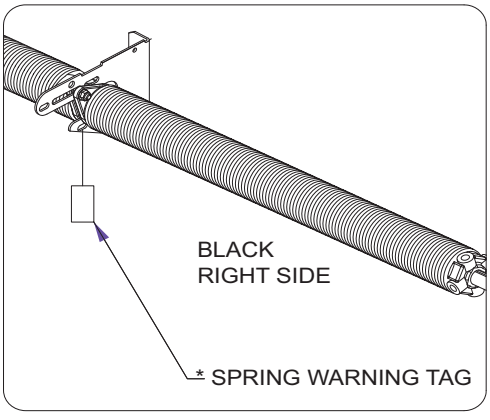
PANEL INSTALLATION (continued)

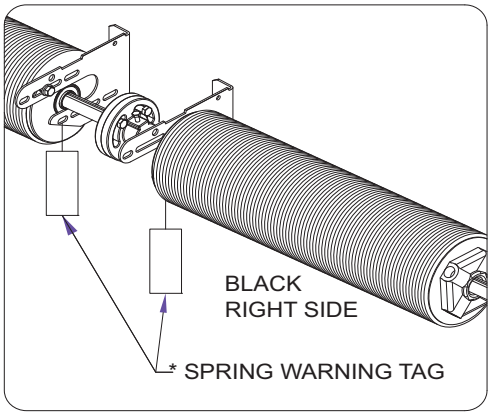
DECALS & PLACARD INSTALLATION (continued)

The Spring Warning Tag (TKO Part Number 15-00005) must be fastened to the center bearing bracket for the counter balance springs as illustrated on the adjacent page. Inspect each door every 30 days to ensure that this tag is still fastened to shaft/spring assembly and is legible. Replace as necessary.

WARNING
HIGH SPRING TENSION CAN CAUSE SERIOUS INJURY OR DEATH.
DO NOT adjust, repair or remove springs or parts to which springs are connected, such as steel brackets, cables, wood blocks, red colored fasteners or other parts of counterbalance system.
Adjustments or repairs must ONLY be made by a trained door systems technician using proper tools and instructions.
DO NOT remove, cover or paint over this tag. Product user should inspect this tag periodically for legibility and should order a replacement tag from the door manufacturer, as needed.
DASMA
1/06
CRGD-102

WARNING
HIGH SPRING TENSION CAN CAUSE SERIOUS INJURY OR DEATH.
DO NOT adjust, repair or remove springs or parts to which springs are connected, such as steel brackets, cables, wood blocks, red colored fasteners or other parts of counterbalance system.
Adjustments or repairs must ONLY be made by a trained door systems technician using proper tools and instructions.
DO NOT remove, cover or paint over this tag. Product user should inspect this tag periodically for legibility and should order a replacement tag from the door manufacturer, as needed.
DASMA
1/06
CRGD-102





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SPRING/SHAFT INSTALLATION

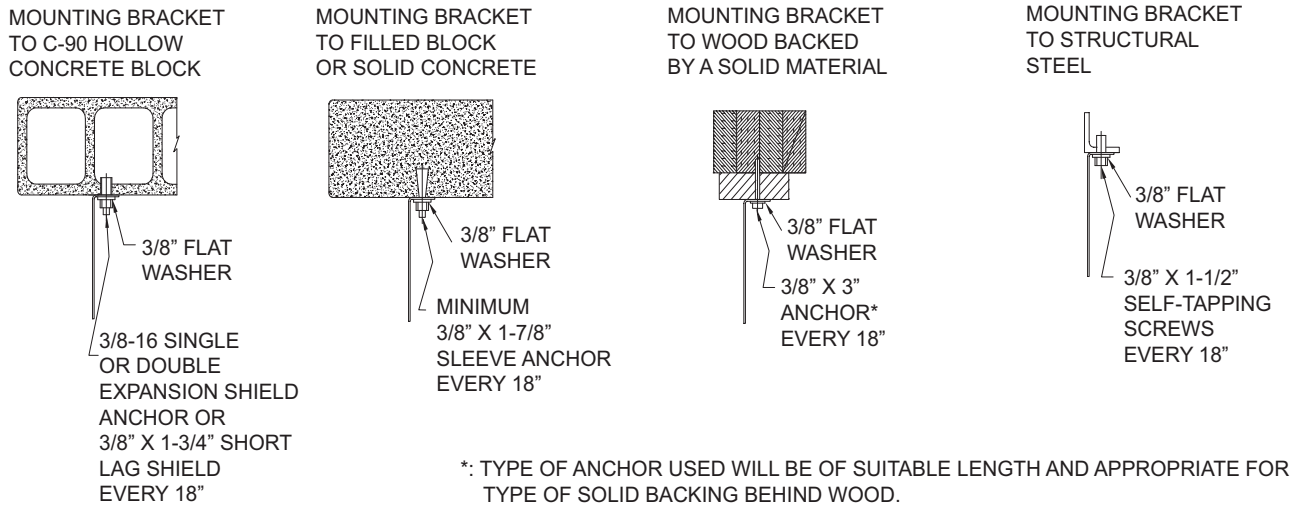
⚠ WARNING

Failure to properly secure the Anchor Pad could allow the Springs to violently disengage from the wall and could result in death or serious injury. NEVER use nails! It is important that the Torsion Spring Assembly is securely mounted to the wall structure.

CENTER SPRING PAD/ CENTER BEARING BRACKET INSTALLATION

1. Measure CENTER LINE OF SHAFT (C/L) and verify area for proper spring pad mounting.
2. Identify style of spring/shaft assembly supplied with door.
3. Center anchor pad(s) MUST BE at least 2" wide by 6" high to properly support center bearing bracket(s). Single shafts will require a single pad/bracket centered in the door opening. Dual shafts with couplers will require two pads/brackets centered in opening and spaced approximately 12 inches apart. Single shafts with Dual 6" Springs will also require two (2) pads/brackets.
4. Center anchor pad(s) MUST adequately support the center bearing bracket(s) and torsion spring assembly.
5. If center anchor pad is wood, pad MUST BE free of cracks and splits in the wood. If wood is cracked or split, it MUST BE replaced. DO NOT use wood of less than grade 2 yellow pine or wood labeled as spruce-pine-fur (SPF). Pilot drill all holes to prevent splitting of wood.
6. TKO recommends that the Center Bearing Bracket(s) not be welded. This Alternate Anchoring Method will not allow for adjustment if the spring shaft needs leveling. See illustration below for Recommended Anchoring Methods.

RECOMMENDED ANCHORING METHODS


MOUNTING BRACKET TO C-90 HOLLOW CONCRETE BLOCK
3/8" FLAT WASHER
3/8-16 SINGLE OR DOUBLE EXPANSION SHIELD ANCHOR OR 3/8" X 1-3/4" SHORT LAG SHIELD EVERY 18"
MOUNTING BRACKET TO FILLED BLOCK OR SOLID CONCRETE
3/8" FLAT WASHER
MINIMUM 3/8" X 1-7/8" SLEEVE ANCHOR EVERY 18"
MOUNTING BRACKET TO WOOD BACKED BY A SOLID MATERIAL
3/8" FLAT WASHER
3/8" X 3" ANCHOR* EVERY 18"
MOUNTING BRACKET TO STRUCTURAL STEEL
3/8" FLAT WASHER
3/8" X 1-1/2" SELF-TAPPING SCREWS EVERY 18"

*: TYPE OF ANCHOR USED WILL BE OF SUITABLE LENGTH AND APPROPRIATE FOR TYPE OF SOLID BACKING BEHIND WOOD.

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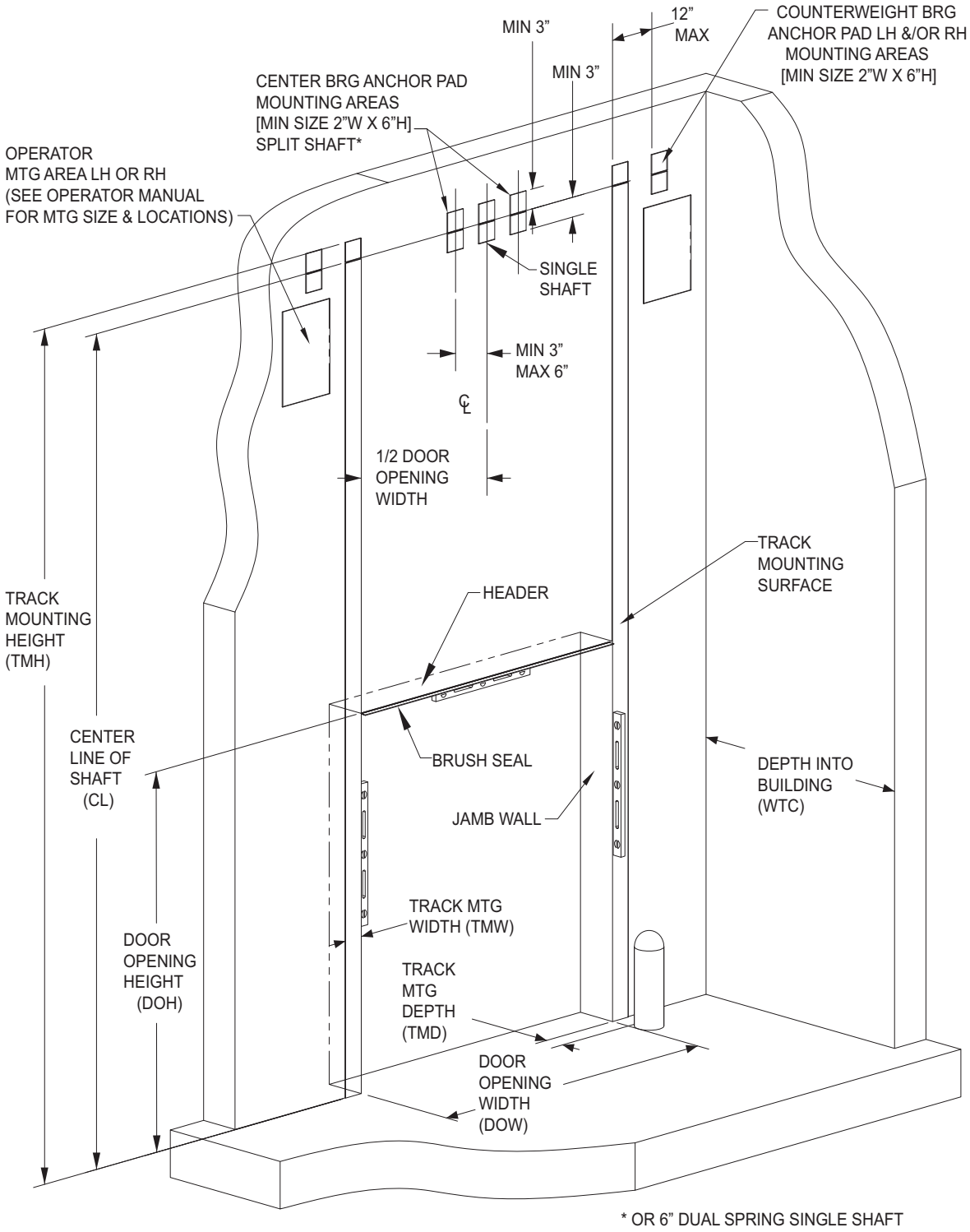
SPRING/SHAFT INSTALLATION (continued)

CENTER SPRING PAD INSTALLATION


MIN 3"
12" MAX
COUNTERWEIGHT BRG ANCHOR PAD LH &/OR RH MOUNTING AREAS [MIN SIZE 2"W X 6"H]
MIN 3"
CENTER BRG ANCHOR PAD MOUNTING AREAS [MIN SIZE 2"W X 6"H] SPLIT SHAFT*
OPERATOR MTG AREA LH OR RH (SEE OPERATOR MANUAL FOR MTG SIZE & LOCATIONS)
SINGLE SHAFT
MIN 3" MAX 6"
℄
1/2 DOOR OPENING WIDTH
TRACK MOUNTING SURFACE
HEADER
TRACK MOUNTING HEIGHT (TMH)
CENTER LINE OF SHAFT (CL)
BRUSH SEAL
DEPTH INTO BUILDING (WTC)
JAMB WALL
TRACK MTG WIDTH (TMW)
DOOR OPENING HEIGHT (DOH)
TRACK MTG DEPTH (TMD)
DOOR OPENING WIDTH (DOW)

* OR 6" DUAL SPRING SINGLE SHAFT

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SPRING/SHAFT INSTALLATION

⚠WARNING

Failure to assemble the Torsion Springs and Counterbalance System correctly will cause the door to function improperly and could result in death or serious injury.

COMPONENT IDENTIFICATION

1. Identify specific spring, shaft, and bearing kit required for selected door. See the Counter Balance PDS (Production Detail Sheet) from the Owner's Parts Book.
2. Inspect spring/shaft components for any missing or damaged items.
3. When viewing the door from the inside of the building, looking out, RED winding cone torsion springs/ drums are installed on the left side of the door and BLACK winding cone torsion springs and drums are installed on the right side of the door.
4. Failure to install the torsion springs correctly will cause the door to function improperly and could result in serious injury. If door is to be equipped with a chain hoist or motor operator, a solid keyed shaft MUST BE used for shaft assembly.

SINGLE SPRING/SINGLE SHAFT ASSEMBLY

1. Layout counter balance parts on floor
2. Identify if spring is left hand (red) or right hand (black)
3. Slide center bearing(s) to the center of the shaft with the bearing race facing away from the selected spring.
4. Slide the left spring (red) on to shaft with the stationary spring cone facing the center of shaft and the winding cone to the outer.
5. Slide the right spring (black) on to shaft with the stationary spring cone facing the center of shaft and the winding cone to the outer.
6. Bolt spring stationary cone, center bearing(s), and center bearing bracket(s) together. DO NOT tighten completely, this will allow for adjustments with installation.
7. Slide the left drum (red) on the left side of shaft with the setscrews facing the center of the shaft.
8. Slide the right drum (black) on the right side of shaft with the setscrews facing the center of the shaft.
9. Slide on specified end bearings on to both ends of shaft with correct orientation. The bearing race has an outside diameter of 1-1/4" and projects from the flange 1/8". The bearing housing has an outside diameter of 2" and projects from the flange 3/8". The bearing race needs to be facing the cable drums.
10. Lift counterbalance assembly onto end bearing plates, making sure end bearing are positioned inside of plates with races facing inward.
11. Secure shaft and bearing to plate using carriage bolts supplied. Verify bearing position specified on IDS (Installer Detail Sheet) in the owner's parts book.
12. Slide drums against end bearing races. Insert the shaft key for each drum when a solid shaft with a keyway is being used.
13. Tighten the set screws as follows:
    - Solid Shaft: Do not exceed 1/2 turn after coming in contact with the shaft.
    - Hollow Shaft: Tighten set screws enough to dimple shaft, about 1-1/4 turns after set screws first hit shaft.

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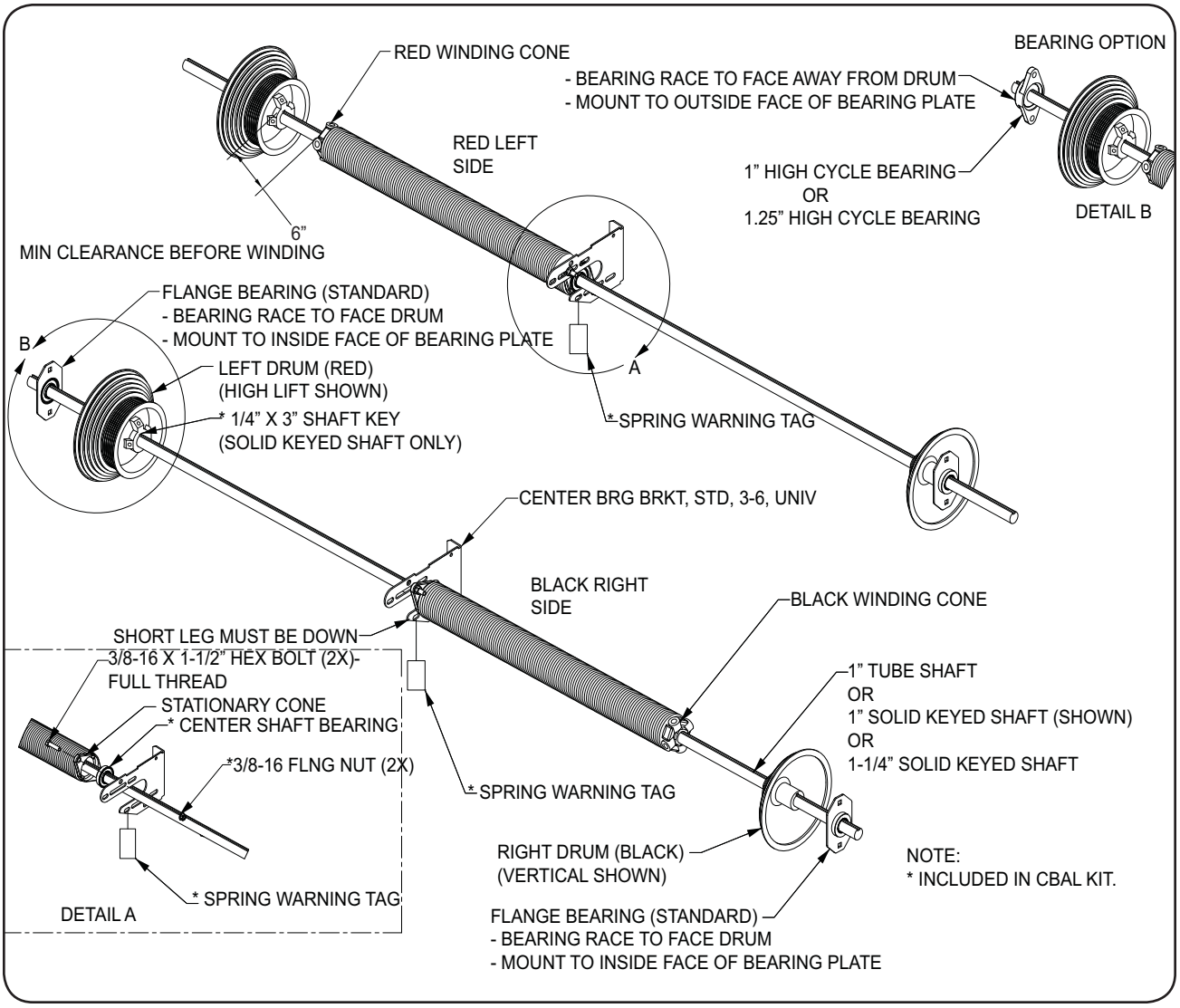
SPRING/SHAFT INSTALLATION (continued)

⚠ WARNING

Failure to assemble the Torsion Springs and Counterbalance System correctly will cause the door to function improperly and could result in death or serious injury.

SINGLE SPRING WITH SINGLE SHAFT



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SPRING/SHAFT INSTALLATION (continued)

⚠WARNING

Failure to assemble the Torsion Springs and Counterbalance System correctly will cause the door to function improperly and could result in death or serious injury.

DOUBLE SPRING/SINGLE SHAFT ASSEMBLY

1. Layout counter balance parts on floor
2. For 6" Springs - Slide the two center bearings to the center of the shaft with the bearing races facing each other.
3. For 2 5/8" or 3 3/4" dia Springs - Slide center bearing to the center of the shaft with the bearing race facing away from the selected spring.
4. Slide the left spring (red) on to shaft with the stationary spring cone facing the center of shaft and the winding cone to the outer.
5. Slide the right spring (black) on to shaft with the stationary spring cone facing the center of shaft and the winding cone to the outer.
6. Bolt spring stationary cones, center bearing, and center bearing bracket together. DO NOT tighten completely, this will allow for adjustments with installation.
7. Slide the left drum (red) on the left side of shaft with the setscrews facing the center of the shaft.
8. Slide the right drum (black) on the right side of shaft with the setscrews facing the center of the shaft.
9. Slide on specified end bearings on to both ends of shaft with correct orientation. The bearing race has an outside diameter of 1-1/4" and projects from the flange 1/8". The bearing housing has an outside diameter of 2" and projects from the flange 3/8". The bearing race needs to be facing the cable drums.
10. Lift counterbalance assembly onto end bearing plates, making sure bearings are positioned inside of the plates with races facing inward.
11. Secure shaft and bearing to plate using carriage bolts supplied.
12. Slide drums against end bearing races. Insert the shaft key for each drum when a solid shaft with a keyway is being used.
13. Prior to final tightening center bearing bracket, bolts and anchors, adjust the shaft to ensure it is running straight and level.
14. Tighten the set screws as follows:
    - Solid Shaft: Do not exceed 1/2 turn after coming in contact with the shaft.
    - Hollow Shaft: Tighten set screws enough to dimple shaft, about 1-1/4 turns after set screws first hit shaft.

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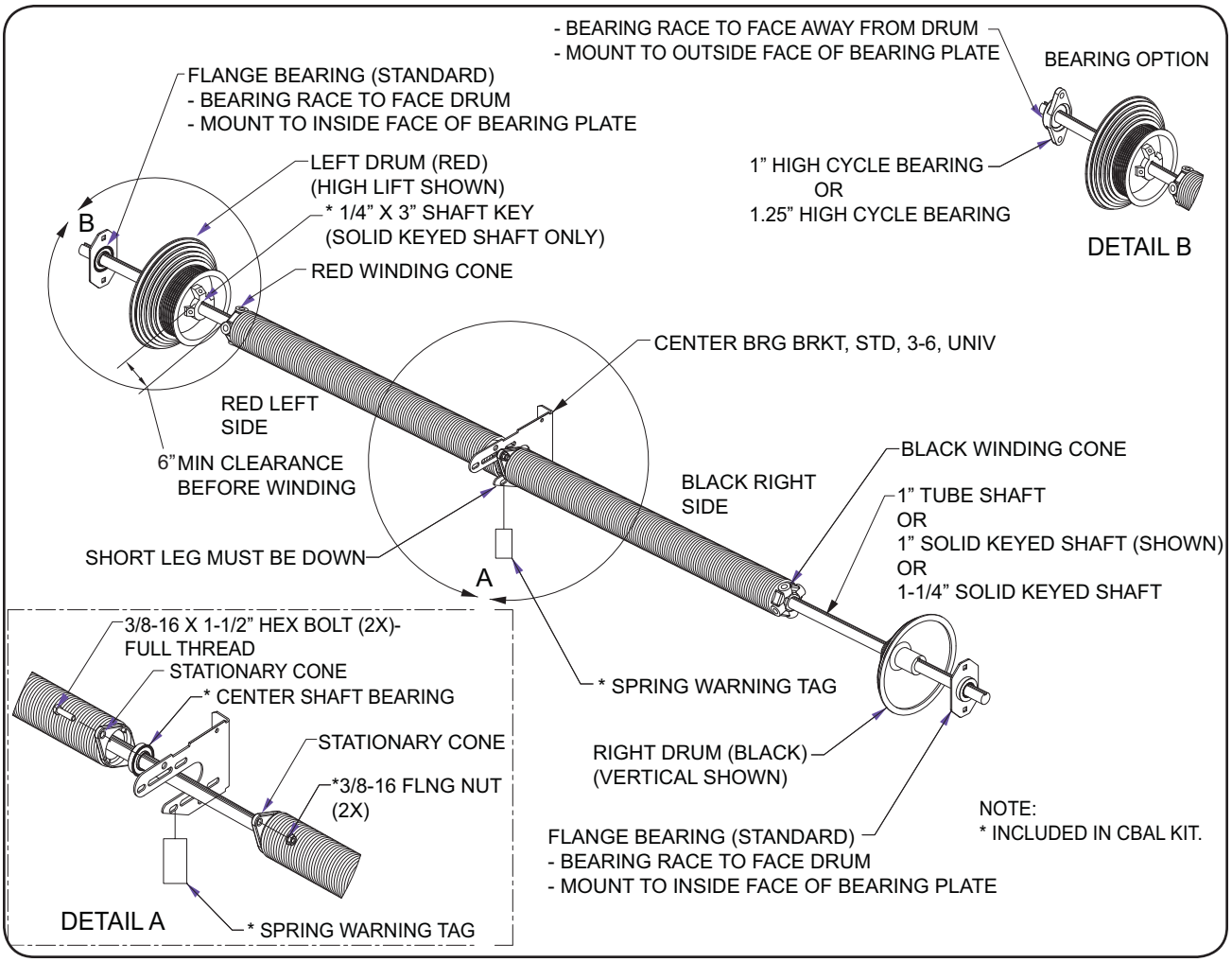
SPRING/SHAFT INSTALLATION (continued)

⚠WARNING

Failure to assemble the Torsion Springs and Counterbalance System correctly will cause the door to function improperly and could result in death or serious injury.

DOUBLE SPRING WITH SINGLE SHAFT



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SPRING/SHAFT INSTALLATION (continued)

⚠ WARNING

Failure to assemble the Torsion Springs and Counterbalance System correctly will cause the door to function improperly and could result in death or serious injury.

DOUBLE SPRING/SPLIT SHAFT ASSEMBLY

1. Layout counter balance parts on floor
2. Slide each 1/2 of the coupler flush to the ends of the both shafts that will be mounted together in the center.
3. Install keys into shaft/coupler and tighten setscrews and locking nuts.
4. Coupler, shaft and key MUST BE flush. Both ends will be bolted together when installing spring assembly.
5. Slide center bearing on to each shaft with the race facing the coupler.
6. Slide the left spring (red) on to left shaft with the stationary spring cone facing the coupler. Slide the right spring (black) on to right shaft with the stationary spring cone facing the coupler.
7. Bolt spring stationary cones, center bearing, and center bearing bracket together. DO NOT tighten completely, this will allow for adjustments with installation.
8. Slide the left drum (red) on the left side of shaft with the setscrews facing the coupler.
9. Slide the right drum (black) on the right side of shaft with the setscrews facing the coupler.
10. Slide on specified end bearings on to both ends of shaft with correct orientation. The bearing race has an outside diameter of 1-1/4" and projects from the flange 1/8". The bearing housing has an outside diameter of 2" and projects from the flange 3/8". The bearing race needs to be facing the cable drums.
11. Lift counterbalance assembly onto end bearing plates, making sure bearings are positioned inside of the plates with races facing inward.
12. Secure shaft and bearing to plate using carriage bolts supplied.
13. Slide drums against end bearing races. Insert the shaft key for each drum when a solid shaft with a keyway is being used.
14. Prior to final tightening center bearing bracket, bolts and anchors, adjust the shaft to ensure its running straight and level.
15. Tighten the set screws as follows:
    - Solid Shaft: Do not exceed 1/2 turn after coming in contact with the shaft.
    - Hollow Shaft: Tighten set screws enough to dimple shaft, about 1-1/4 turns after set screws first hit shaft.

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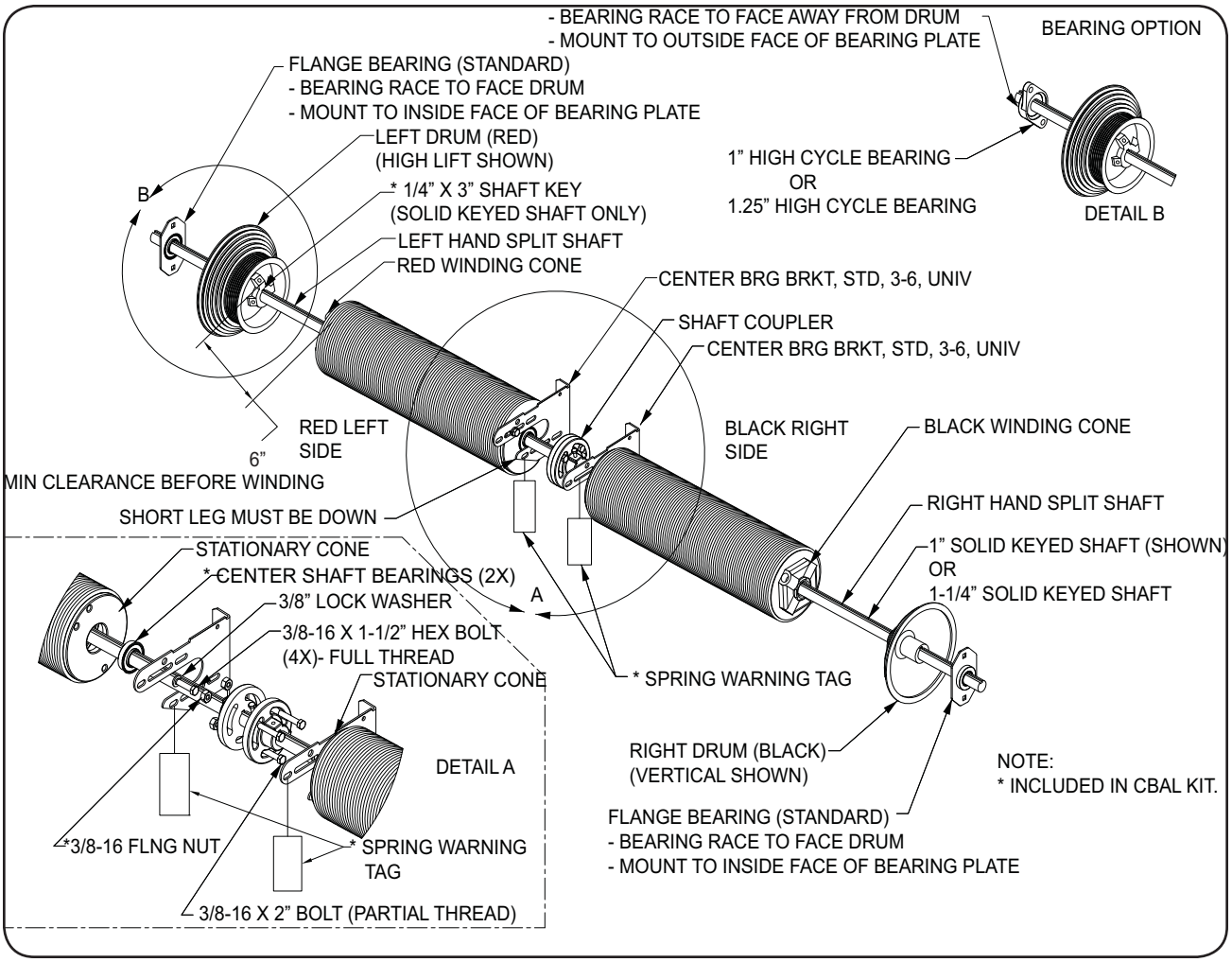
SPRING/SHAFT INSTALLATION (continued)

⚠ WARNING

Failure to assemble the Torsion Springs and Counterbalance System correctly will cause the door to function improperly and could result in death or serious injury.

DOUBLE SPRING WITH SPLIT SHAFT



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WINDING SPRINGS

⚠WARNING

The Spring Assembly, which includes the Springs, Spring Anchor Brackets, Cables, Cable Drums and Bearing Brackets, is under extreme tension and if handled improperly, could result in death or serious injury. Spring Assemblies should ONLY be installed, adjusted or repaired by a trained door systems technician.

SECURE DOOR

1. Check stacked panels for level.
2. Verify that the cable attachment bracket is installed on the correct panel (see Installer Detail Sheet).
3. Securely lock door in down position to prevent door from opening while winding springs.

INSTALL CABLES

1. Position Left-Hand (red) drum to shaft, making sure that the drum is tight against the bearing race. Tighten drum to the shaft. If shaft is solid keyed, properly align drum/shaft and install shaft key prior to tightening.
2. Obtain cable that is attached to the left cable bracket on panel and run it up to the shaft between the wall and the drum. On straight vertical doors, attach cable to the outside hole of the cable attachment bracket.
3. Place cable stops in the notch in the backside of drum and turn the drum/shaft until all slack in cable is removed. Make sure cable is seated properly in the grooves of the drum.
4. Fasten locking pliers to the shaft with the handle braced against the wall to keep cables taut.
5. Position Right-Hand (black) drum tight against bearing race.
6. Obtain cable that is attached to the right cable bracket on panel and run it up to the shaft between the wall and the drum. On straight vertical doors, attach cable to the outside hole of the cable attachment bracket.
7. Place cable stops in the notch in the backside of drum and turn the drum until all slack in cable is removed. Make sure cable is seated properly in the grooves of the drum.
8. Tighten drum to shaft. If shaft is solid keyed, properly align drum/shaft and install shaft key prior to tightening. Each cable MUST have the same amount of pre-tension.
9. If split shaft is supplied, securely tighten shaft coupler bolts, set screws and locking nuts.

WIND SPRINGS

See parts book (Installer IDS sheet) for spring turns.

1. Clear the area of personnel and keep yourself out of the direct path of the winding bars while winding the torsion springs.
2. Use a sturdy ladder or platform to stand on and keep slightly to the side of the winding bars.
3. Mark horizontal chalk line across the entire length of spring(s). This will help indicate the number of turns placed on the torsion spring(s).
4. Insert the winding bars into the full depth of hole in the winding cone.

⚠WARNING

The spring assembly, which includes the springs, spring anchor brackets, cables, cable drums and bearing brackets, is under extreme tension. Spring assemblies should ONLY be installed, adjusted or repaired by a trained door systems technician. Winding bars MUST fit snugly into the holes in the winding cone. NEVER use smaller rods or screwdrivers as winding bars. Failure to use proper winding bars could result in death or serious injury.

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WINDING SPRINGS (continued)

WIND SPRINGS (continued)

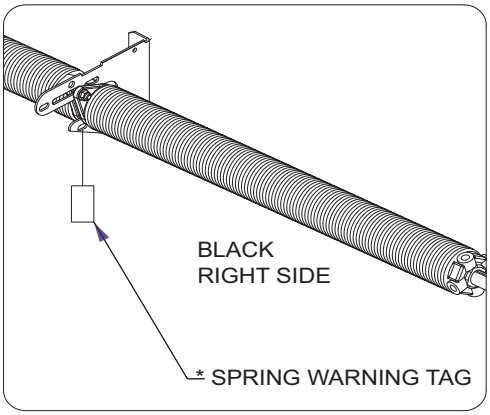
5. Wind springs in an upward direction 1/4 turn and hold the tension.
6. Insert the second winding bar fully into the next available hole in the winding cone. Take the load on the second winding bar and remove the first winding bar.
7. Wind the second winding bar upward 1/4 turn. Always wind springs in 1/4 turn increments. Four 1/4 turns are required to obtain one full turn. The number of turns can be obtained by counting the turns of the chalk line.
8. Continue this procedure until the specified number of turns per spring is obtained. If tension in the torsion spring DOES NOT increase when adding 1/4 turn, the springs may be reversed. As the torsion springs are wound, the spring will grow longer. Allow winding cone to move outward as turns are applied to prevent "kinking" of spring wire.
9. When the last 1/4 turn has been completed, insert a second winding bar into the bottom hole of the winding cone and stretch springs outward 1/2" to 1". This will eliminate the possibility of spring coils binding during operation.
10. Tighten setscrews on the winding cone with oiled threads to 15-16 ft-lbs. Follow the recommendations listed below to avoid exceeding the specified torque:
    - Solid Shaft: Do not exceed 1/2 turn after coming in contact with the shaft.
    - Hollow Shaft: Tighten set screws enough to dimple shaft, about 1-1/4 turns after set screws first hit shaft.
11. Make sure all springs are thoroughly oiled (around the entire circumference of the spring) with LightWeight oil or equivalent.
12. Repeat this procedure for other spring. On doors with two springs, both springs should be wound the same amount of turns.

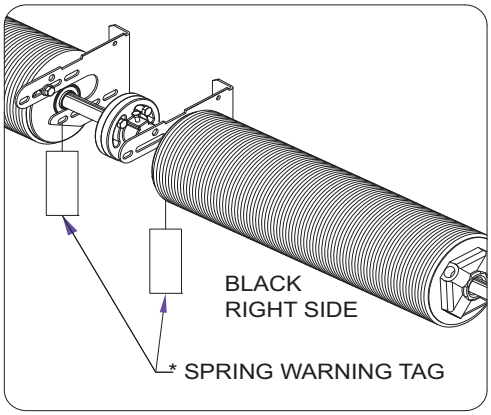
⚠ WARNING

If any adjustment to the Upper Tracks has to be made, the door MUST BE locked in the closed position. If it is required to add or reduce the tension of the Torsion Springs, always use Winding Bars and stay clear to the side. Be prepared to handle the force of the Springs. NEVER adjust the Center Bearing Bracket after the Springs are wound.

Use caution when opening the door for the first time. If the Tracks are incorrectly mounted too wide, the door may fall out of the Tracks.

13. Install SPRING WARNING TAG as shown in the illustrations below.





14. It is recommended that only Silicone Spray is applied to entire track system (lower, upper, radius, and horizontal tracks where plunger tips and side seals contact).
15. While securely holding down the door, unlock the door and slowly raise the door. It is recommended that ONLY Silicone Spray is applied to entire track system (lower, upper, radius and horizontal tracks where plunger tips and side seals contact).

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WINDING SPRINGS (continued)

16. Remove locking pliers from shaft.

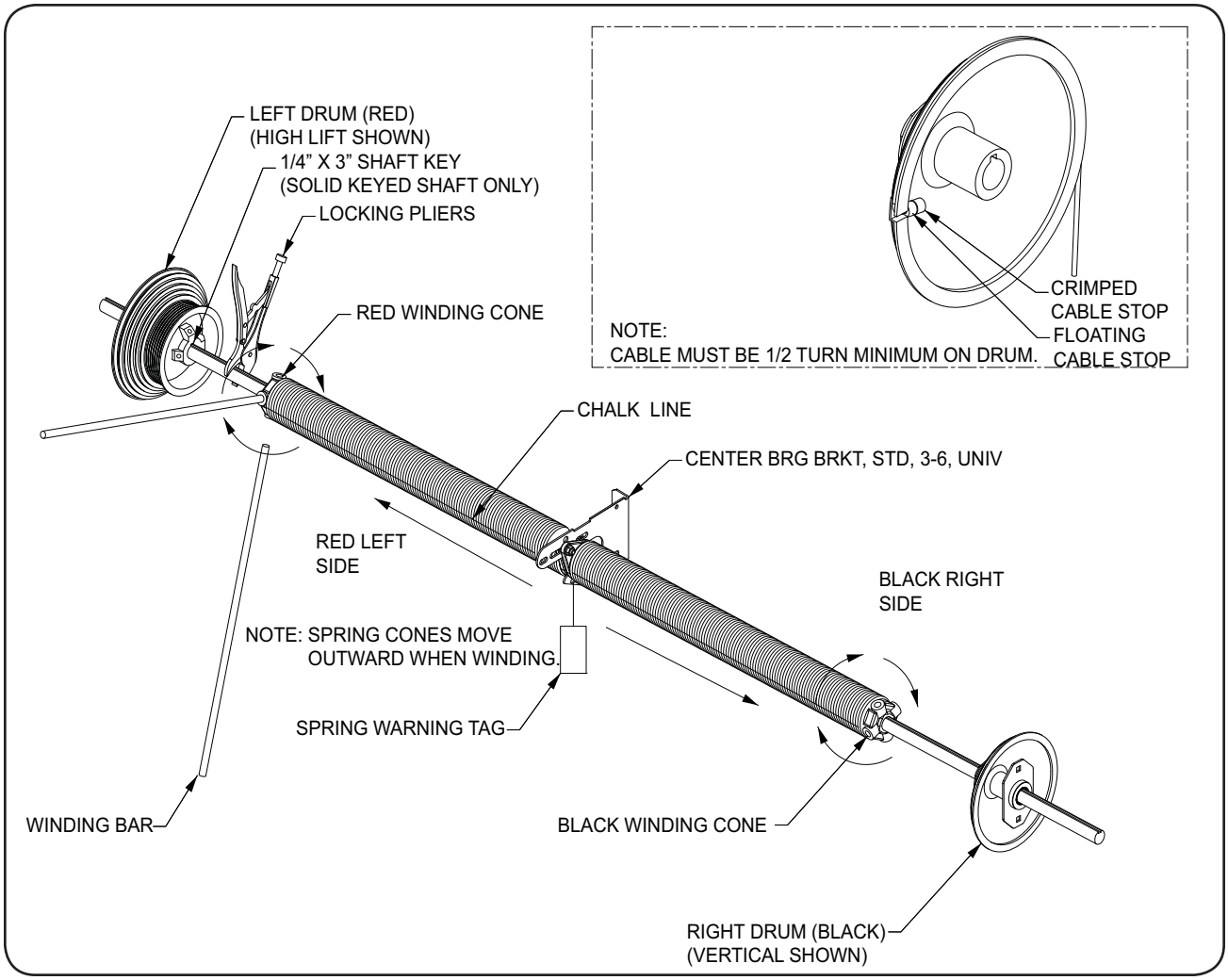
17. While securely holding down the door, unlock the door and slowly raise the door. Cycle door a few times to determine balance. Add or subtract tension as necessary to balance door to customer satisfaction.

18. When door is closed make sure that there is positive sealing around side and bottom seals. Track adjustment and/or leveling may be necessary to accomplish this. It is the installer's responsibility to make these adjustments before leaving the job site. It is the customer's responsibility to maintain this going forward.

⚠ WARNING

The Spring Assembly, which includes the Springs, Spring Anchor Brackets, Cables, Cable Drums and Bearing Brackets, is under extreme tension and if handled improperly, could result in death or serious injury. Spring assemblies should ONLY be installed, adjusted or repaired by a trained door systems technician.

SINGLE SHAFT (SHOWN WITH DUAL SPRING)



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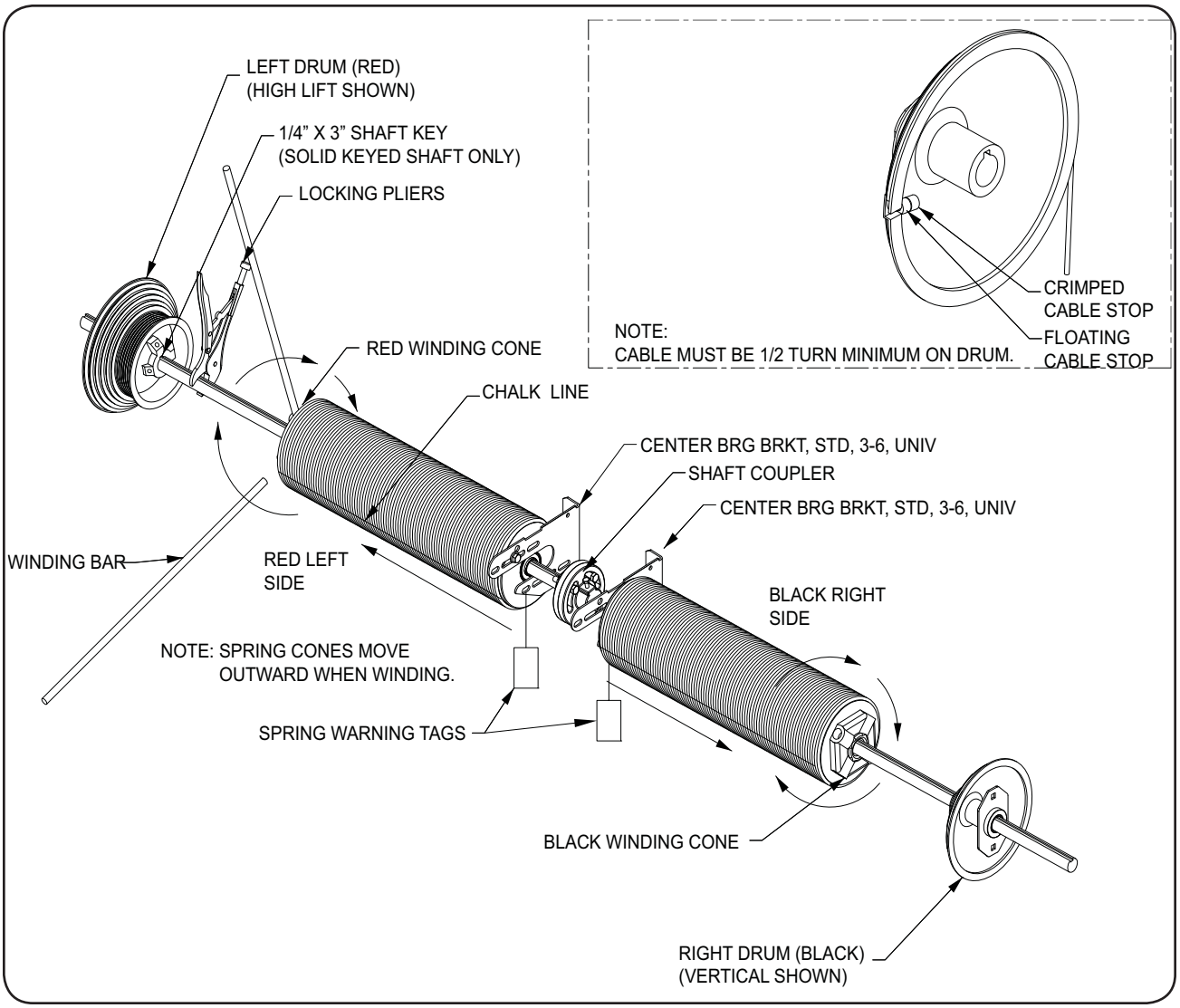
WINDING SPRINGS (continued)

⚠ WARNING

The Spring Assembly, which includes the Springs, Spring Anchor Brackets, Cables, Cable Drums and Bearing Brackets, is under extreme tension and if handled improperly, could result in death or serious injury. Spring assemblies should ONLY be installed, adjusted or repaired by a trained door systems technician.

SPLIT SHAFT (SHOWN WITH DUAL SPRING)



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DOOR OPERATION

⚠ WARNING

Before operating the door, read and follow the Safety Practices on pages 4-5. Stand back. Moving door can crush you. Keep people clear while door is moving. Failure to follow these instructions could result in death or serious injury.

1. DO NOT operate door if it is not properly adjusted or free of obstructions.
2. NEVER operate door until the entire opening and track/guides are free of obstructions, equipment, material and people.
3. Keep hands clear of the tracks, hinges, springs and plungers at all times.
4. Lift and lower door with proper ergonomic methods by using supplied pull rope and door handles/step plates.
5. Raise and lower door slowly and maintain an even door travel speed. Keep door in full view. NEVER throw door up or pull door down at high speed.
6. DO NOT use the loading dock door if it looks broken or DOES NOT seem to work right. Tell your supervisor it needs repair right away.
7. Chock truck wheels or lock truck in place with a truck restraining device and set brakes before loading or unloading.
8. Keep door closed when not in use.
9. Move all equipment, material and people away from loading dock door and close dock door before allowing the truck to pull out.
10. DO NOT use a fork truck or other material handling equipment to raise or lower the loading dock door.

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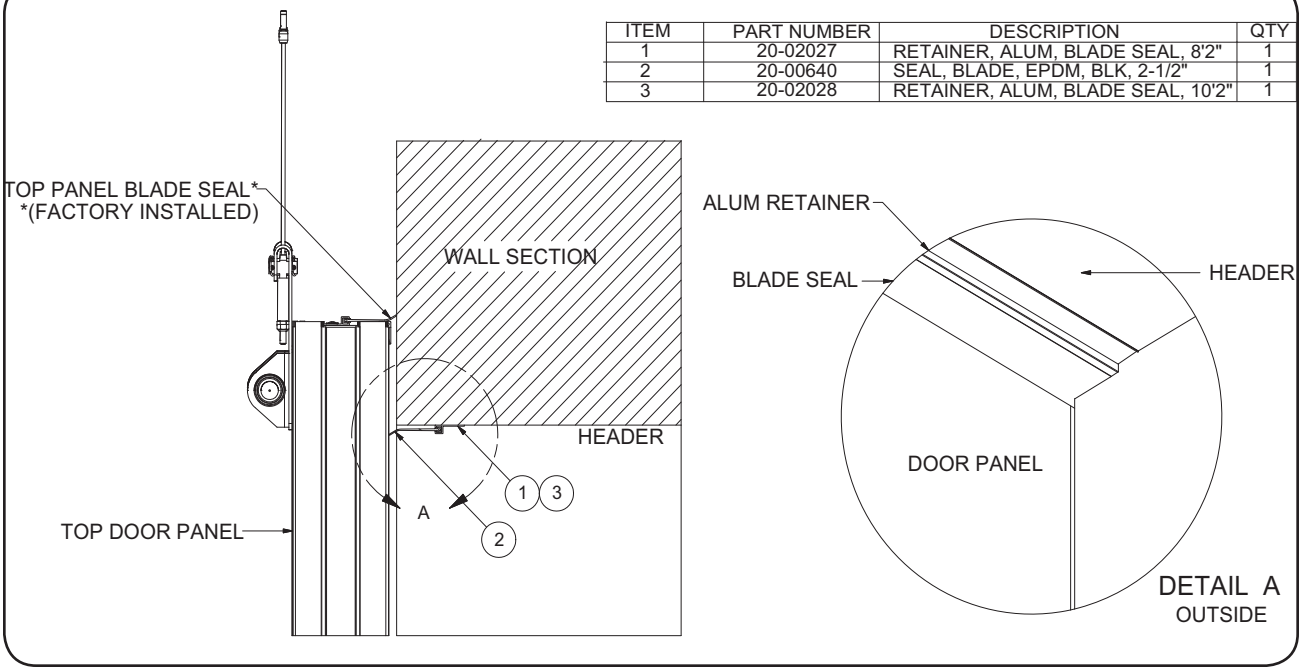
AVAILABLE OPTIONS

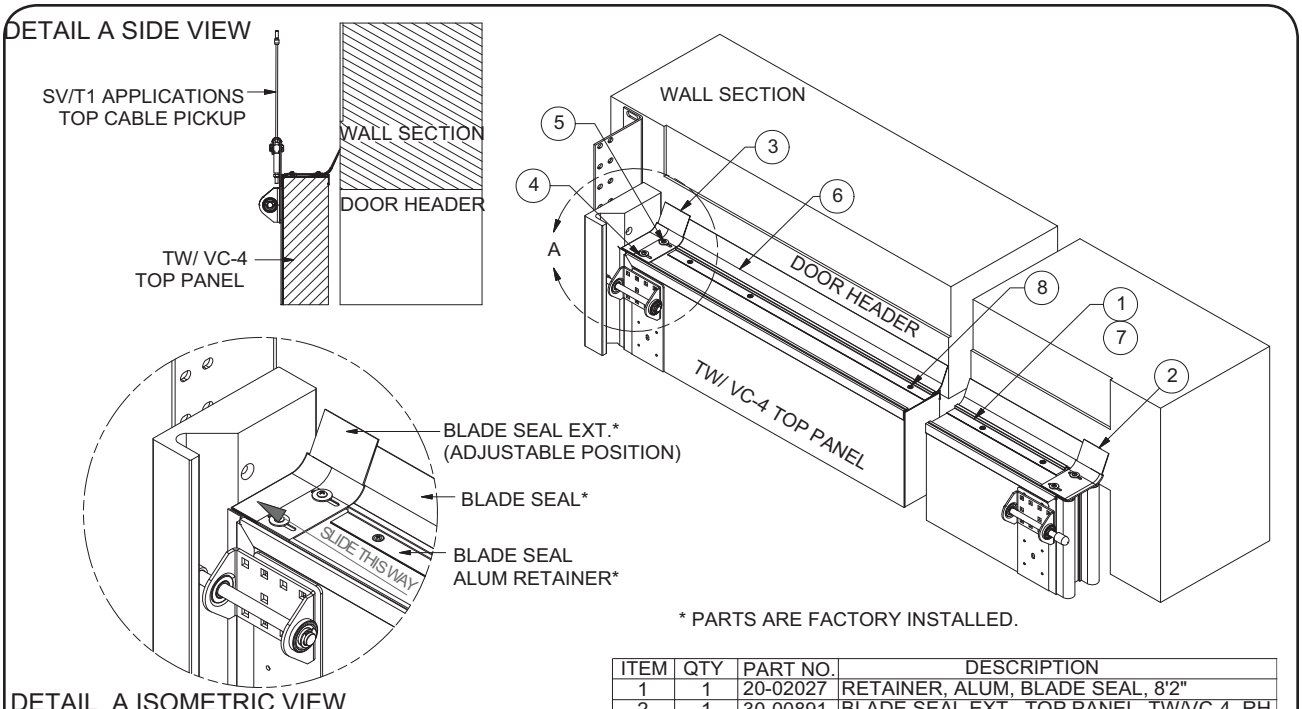
- **Blade Weather Seal Kit for Header/ Top of Top Panel**

BLADE WEATHER SEAL KIT FOR HEADER

ITEM	PART NUMBER	DESCRIPTION	QTY
1	20-02027	RETAINER, ALUM, BLADE SEAL, 8'2"	1
2	20-00640	SEAL, BLADE, EPDM, BLK, 2-1/2"	1
3	20-02028	RETAINER, ALUM, BLADE SEAL, 10'2"	1



BLADE WEATHER SEAL KIT FOR TOP OF TOP PANEL



* PARTS ARE FACTORY INSTALLED.

ITEM	QTY	PART NO.	DESCRIPTION
1	1	20-02027	RETAINER, ALUM, BLADE SEAL, 8'2"
2	1	30-00891	BLADE SEAL EXT., TOP PANEL, TW/VC-4, RH
3	1	30-00892	BLADE SEAL EXT., TOP PANEL, TW/VC-4, LH
4	4	10-00350	WASHER, FLAT, 3/16" I.D.
5	4	10-00349	SCREW, SHT METAL PH, #10 X 1"
6	1	20-00640	BLADE SEAL, EPDM BLACK 2-1/2"
7	1	20-02028	RETAINER, ALUM, BLADE SEAL, 10'2"
8	1	30-00300	HRDW, K-LATH #8X3/4", 10 PACK

NOTES:
1. CYCLE THEN LEVEL DOOR.
2. LOOSEN RH AND LH BLADE SEAL EXTENSION SCREWS.
3. SLIDE EXTENSIONS OUTWARD TO OBTAIN POSITIVE SEAL TO TRACKS (SEE DETAIL A ABOVE).

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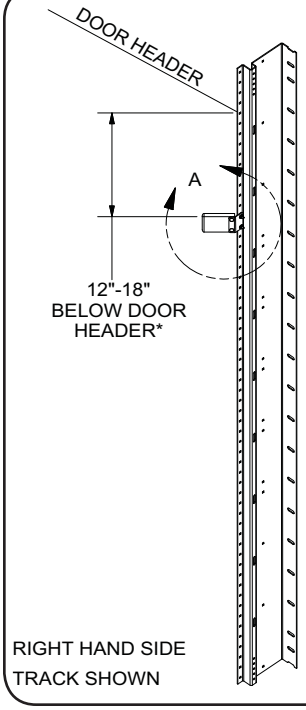
AVAILABLE OPTIONS (continued)

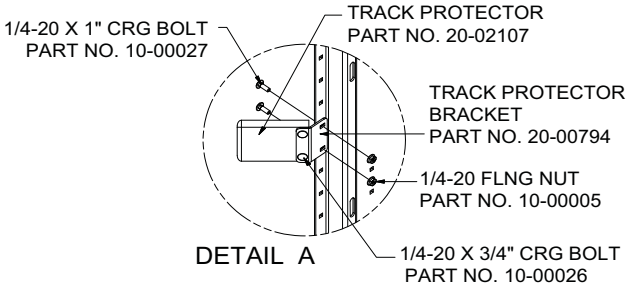
- **Track Protector- VC**
- **Anti-Drift Down Brush Kits- STL Track and FH I-A-T**

TRACK PROTECTOR- VC



PART NUMBER	DESCRIPTION	QTY REQD
20-02107	TRACK PROTECTOR	2
20-00794	TRACK, WW, SPLICE ANGLE, DKO	2
10-00027	BOLT, CRG, 1/4-20 X 1"	4
10-00026	BOLT, CRG, 1/4-20 X 3/4"	4
10-00005	NUT, FLNG, 1/4-20	8

NOTE: PARTS INCLUDED IN KIT- TRACK PROTECTOR VC PART NO. 30-00880.



FIELD INSTALLATION INSTRUCTIONS:

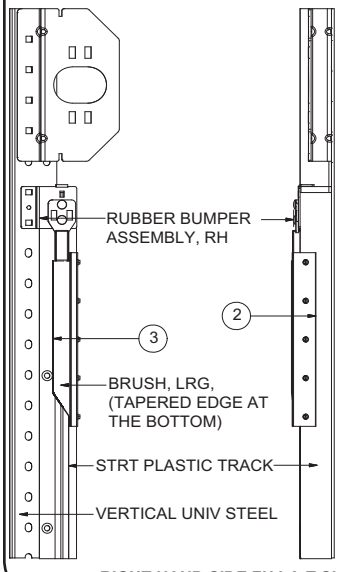
1. REMOVE EXISTING 1/4-20 X 1" CARRIAGE BOLTS AND FLANGE NUTS AS SHOWN ON DETAIL A.
2. ATTACH THE TRACK PROTECTOR BRACKET TO STEEL TRACK AT 12" TO 18" BELOW THE HEADER OR AS NOTED ON THE DRAWING*.
3. REATTACH THE CARRIAGE BOLTS AND THEN TIGHTEN FLANGE NUTS.
4. REPEAT STEPS 1 THRU 3 FOR THE OPPOSITE SIDE TRACK.

*** NOTE: ADJUST AS NEEDED BASED ON TRUCK DOOR STYLE.**

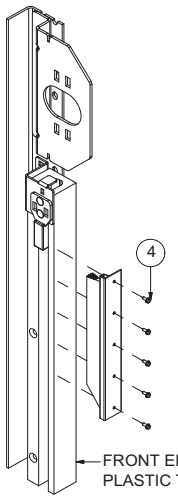
ANTI-DRIFT DOWN BRUSH KITS- STL TACK AND FH I-A-T

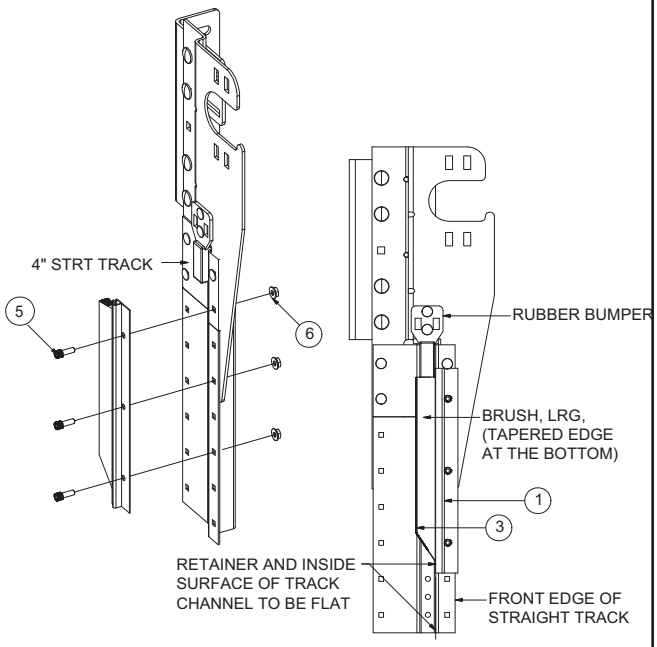
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	20-02007	RETNR, LRG, #7,STR,ML 11.38"
2	2	20-02008	RETNR, LRG, #7,90D, ML 11.38"
3	2	20-02009	BRUSH, LRG, #7, 1.50",BLK-10.63"
4	5	10-00334	SCREW, SLT HEX HD SP #8 X 1/2
5	3	10-00335	SCREW,SOC HD CAP, 1/4-20X3/4" BLK
6	3	10-00005	NUT, FLNG, 1/4-20

NOTES:
1. ITEM NO.S 1,3,5, AND 6 ARE INCLUDED IN TKO PART NO. 30-00876- ANTI-DRIFT DOWN BRUSH KIT STL TACK.
2. ITEM NO.S 2,3, AND 4 ARE INCLUDED IN TKO PART NO. 30-00877- ANTI-DRIFT DOWN BRUSH KIT FH I-A-T.



RIGHT HAND SIDE FH I-A-T SHOWN





RIGHT HAND SIDE STL TRACK SHOWN

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PLANNED MAINTENANCE

⚠ WARNING

Before servicing the door, read and follow the Safety Practices on pages 4-5 and the operations section of this manual. DO NOT attempt to repair or adjust door components unless you are a qualified door technician. Springs, Cable Brackets, Cables, Drums, Plungers, Supports and their hardware are under extreme tension and can cause injuries if not properly handled. Always follow the maintenance schedule to ensure all components are in good working condition. Damaged or worn parts MUST BE replaced immediately for proper and safe operation. It is recommended that the door be made inoperative until the damaged or worn parts have been replaced. Observe OSHA requirements for "LOCKOUT" or "TAGOUT" when performing work on the door. Disconnect power before performing maintenance or repair of electrical devices. Use proper tag or lockout procedures per OSHA regulations.

MAINTENANCE SCHEDULE

ITEM	PROCEDURE	INSPECT INTERVALS		
		Daily	Monthly	Every 3 Months
Operation	Manually operate the door. Check for smooth operation and proper balance. If this door has an automatic opener, disconnect it before this inspection.	●		
Labels	Inspect all safety/warning/product labels, placards, decals, tags. Replace if damaged or missing.		●	
Drums, Couplers, Sprockets	Check all set screws and shaft keys and securely tighten. Level door in opening if necessary.			●
Cables	Check for signs of abnormal wear, fraying or damage.			●
Bearings	Check for signs of abnormal wear or damage.			●
Cable Attachments	Check for signs of abnormal wear or damage and properly secure all fasteners.			●
Springs	Check for signs of abnormal wear or damage. Lubricate with Light Weight Oil, remove excess with shop rag ♦.			●
Spring Anchors	Check for signs of abnormal wear or damage and properly secure all fasteners.			●
Shaft	Check for signs of abnormal wear or damage.			●
Track	Check for proper track spacing and alignment.		●	
Track	Check and properly secure all track anchors.			●
Track	Check for signs of abnormal wear or damage.	●		
Safety Spreader Bar	Check Safety Spreader Bar Assemblies (for Tilt Doors) are installed and undamaged.			●
Backhangs/ Sway Braces	Check for signs of abnormal wear or damage and properly secure all fasteners.			●
Plunger shafts and bearings	Spray Light Weight Oil onto the plunger shaft and bearings on both sides of the housing to lubricate ♦.			●
Hinges	Check for signs of abnormal wear or damage.			●
Fasteners	Check and properly secure all fasteners.			●
Panels	Check for signs of abnormal wear or damage.	●		
Panels	Clean with soap ONLY. Call TKO for approved cleaners ♠.	As Needed		
Seals	Check for signs of abnormal wear or damage.			●

♦ Use Light Weight Oil.
♠ Caution: Solvents may damage the panels and void manufacturers warranty.

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TROUBLE SHOOTING

⚠ WARNING

Before servicing the door, read and follow the Safety Practices on pages 4-5 and the Door Operation section on page 45 of this manual.

TROUBLE SHOOTING GUIDE

TROUBLE	PROBABLE CAUSE	REMEDY
Door raises hard, closes easily	Insufficient counterbalance Springs need lubrication	Increase spring tension. Lubricate springs.
Door closes hard, raises easily	Too much counterbalance	Decrease spring tension.
Door jumps from floor	Too much counterbalance	Decrease spring tension.
Door lifts unevenly, light shows on one side of track	Door improperly leveled/ sitting crooked	Slip drums/shaft coupler or use cable leveling assemblies (top pickup doors) to level door.
Door will not stay open	Broken spring Insufficient counterbalance	Replace Spring. Increase spring tension.
Door operates with too much resistance	Springs need lubrication Broken spring Tracks are too tight or Grease/ Residue on tracks	Lubricate springs. Replace Spring. Adjust tracks to correct width Wipe residue off seals/tracks. Lubricate all track running surfaces with a light coat of Silicone Spray. (DO NOT use oil or grease)

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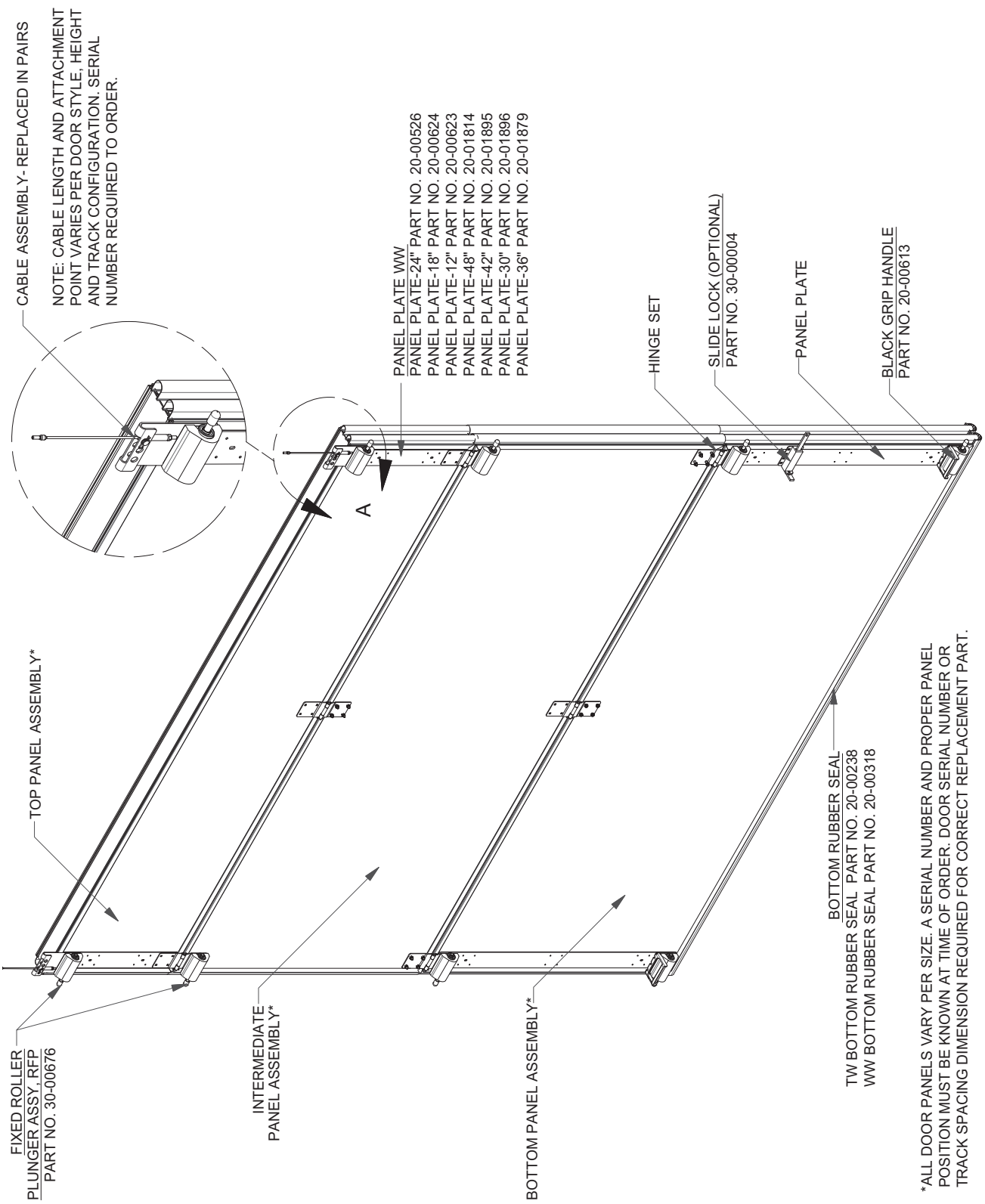
PARTS LISTING

⚠ WARNING

Fixed plungers are required on all panels.


CABLE ASSEMBLY- REPLACED IN PAIRS
NOTE: CABLE LENGTH AND ATTACHMENT POINT VARIES PER DOOR STYLE, HEIGHT AND TRACK CONFIGURATION. SERIAL NUMBER REQUIRED TO ORDER.
PANEL PLATE WW
PANEL PLATE-24" PART NO. 20-00526
PANEL PLATE-18" PART NO. 20-00624
PANEL PLATE-12" PART NO. 20-00623
PANEL PLATE-48" PART NO. 20-01814
PANEL PLATE-42" PART NO. 20-01895
PANEL PLATE-30" PART NO. 20-01896
PANEL PLATE-36" PART NO. 20-01879
HINGE SET
SLIDE LOCK (OPTIONAL) PART NO. 30-00004
PANEL PLATE
BLACK GRIP HANDLE PART NO. 20-00613
A
TOP PANEL ASSEMBLY*
FIXED ROLLER PLUNGER ASSY. RFP PART NO. 30-00676
INTERMEDIATE PANEL ASSEMBLY*
BOTTOM PANEL ASSEMBLY*
BOTTOM RUBBER SEAL
TW BOTTOM RUBBER SEAL PART NO. 20-00238
WW BOTTOM RUBBER SEAL PART NO. 20-00318
*ALL DOOR PANELS VARY PER SIZE. A SERIAL NUMBER AND PROPER PANEL POSITION MUST BE KNOWN AT TIME OF ORDER. DOOR SERIAL NUMBER OR TRACK SPACING DIMENSION REQUIRED FOR CORRECT REPLACEMENT PART.

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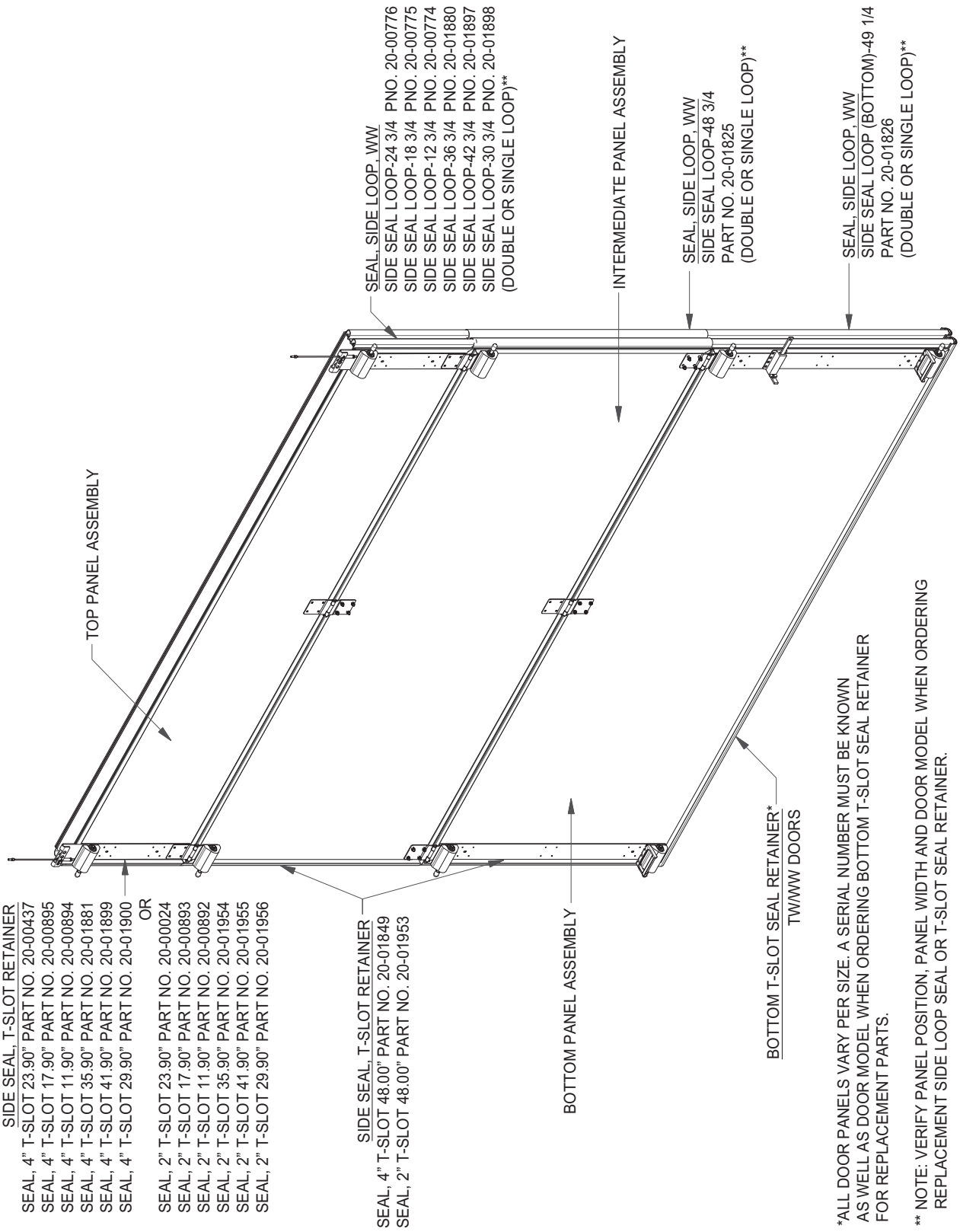
PARTS LISTING

⚠ WARNING

Fixed plungers are required on all panels.


SEAL, SIDE LOOP, WW
SIDE SEAL LOOP-24 3/4 PNO. 20-00776
SIDE SEAL LOOP-18 3/4 PNO. 20-00775
SIDE SEAL LOOP-12 3/4 PNO. 20-00774
SIDE SEAL LOOP-36 3/4 PNO. 20-01880
SIDE SEAL LOOP-42 3/4 PNO. 20-01897
SIDE SEAL LOOP-30 3/4 PNO. 20-01898
(DOUBLE OR SINGLE LOOP)**
INTERMEDIATE PANEL ASSEMBLY
SEAL, SIDE LOOP, WW
SIDE SEAL LOOP-48 3/4
PART NO. 20-01825
(DOUBLE OR SINGLE LOOP)**
SEAL, SIDE LOOP, WW
SIDE SEAL LOOP (BOTTOM)-49 1/4
PART NO. 20-01826
(DOUBLE OR SINGLE LOOP)**
TOP PANEL ASSEMBLY
SIDE SEAL, T-SLOT RETAINER
SEAL, 4" T-SLOT 23.90" PART NO. 20-00437
SEAL, 4" T-SLOT 17.90" PART NO. 20-00895
SEAL, 4" T-SLOT 11.90" PART NO. 20-00894
SEAL, 4" T-SLOT 35.90" PART NO. 20-01881
SEAL, 4" T-SLOT 41.90" PART NO. 20-01899
SEAL, 4" T-SLOT 29.90" PART NO. 20-01900
OR
SEAL, 2" T-SLOT 23.90" PART NO. 20-00024
SEAL, 2" T-SLOT 17.90" PART NO. 20-00893
SEAL, 2" T-SLOT 11.90" PART NO. 20-00892
SEAL, 2" T-SLOT 35.90" PART NO. 20-01954
SEAL, 2" T-SLOT 41.90" PART NO. 20-01955
SEAL, 2" T-SLOT 29.90" PART NO. 20-01956
SIDE SEAL, T-SLOT RETAINER
SEAL, 4" T-SLOT 48.00" PART NO. 20-01849
SEAL, 2" T-SLOT 48.00" PART NO. 20-01953
BOTTOM PANEL ASSEMBLY
BOTTOM T-SLOT SEAL RETAINER*
TW/WW DOORS
*ALL DOOR PANELS VARY PER SIZE. A SERIAL NUMBER MUST BE KNOWN
AS WELL AS DOOR MODEL WHEN ORDERING BOTTOM T-SLOT SEAL RETAINER
FOR REPLACEMENT PARTS.
** NOTE: VERIFY PANEL POSITION, PANEL WIDTH AND DOOR MODEL WHEN ORDERING
REPLACEMENT SIDE LOOP SEAL OR T-SLOT SEAL RETAINER.

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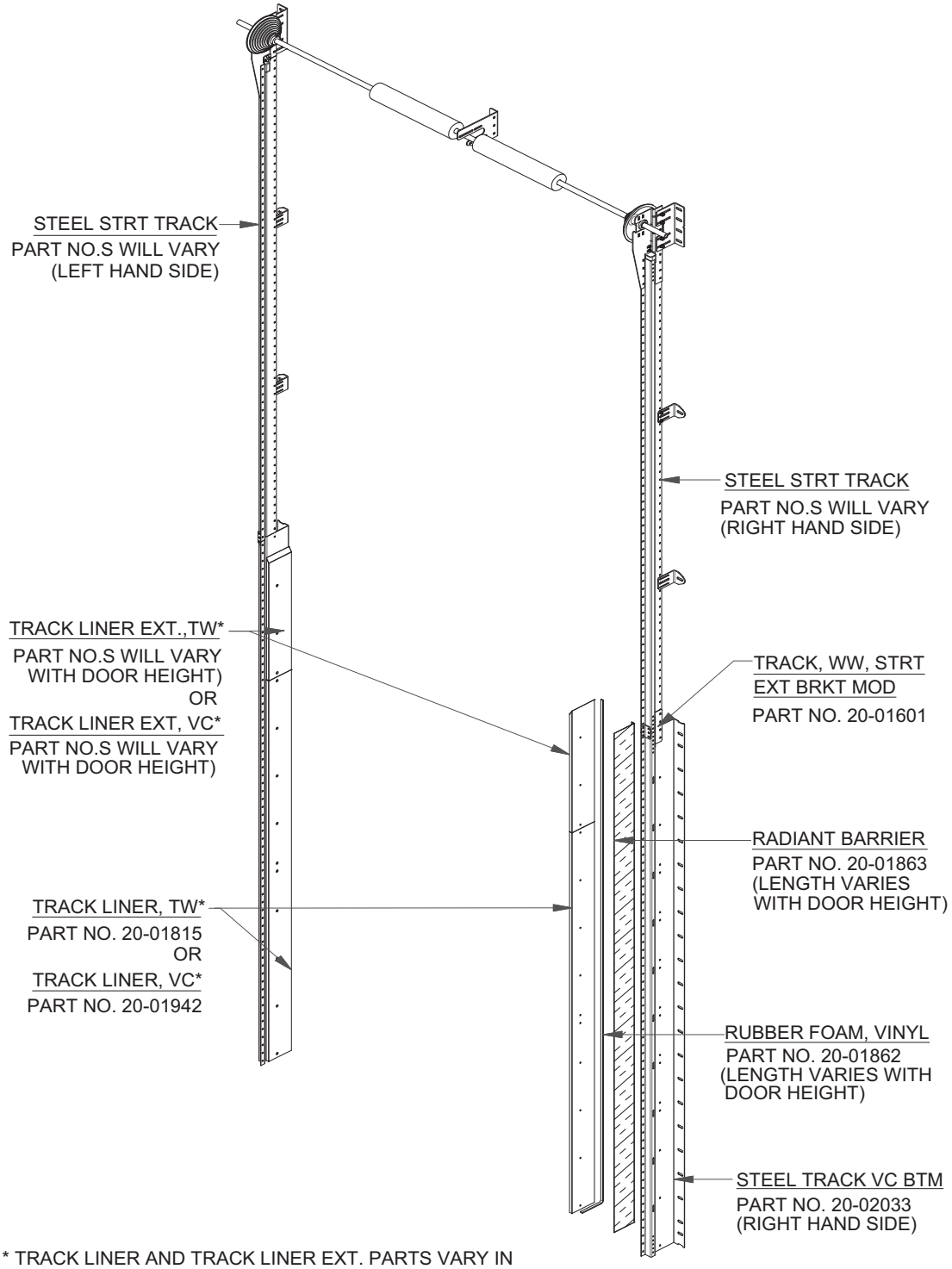
PARTS LISTING

STEEL TRACK ASSEMBLY PARTS (STRAIGHT VERTICAL TRACK SHOWN)

NOTE:
DIFFERENT TRACK CONFIGURATIONS EXIST WITHIN EACH DOOR MODEL LINE. A SERIAL NUMBER AND DOOR MODEL IS REQUIRED WHEN ORDERING TRACK COMPONENTS. CONSULT FACTORY FOR SPECIFIC TRACK CONFIGURATION AND PARTS IDENTIFICATION FOR YOUR SPECIFIC COMPONENT NEED.



* TRACK LINER AND TRACK LINER EXT. PARTS VARY IN LENGTH AND WIDTH WITHIN THE VERTICOOL MODEL LINE AND WITH DOOR PANEL THICKNESS- 4 INCH OR 2 INCH.

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